AMERICAN AGRICULTURIST

FOR THE

FARM · GARDEN · & · HOUSEHOLD

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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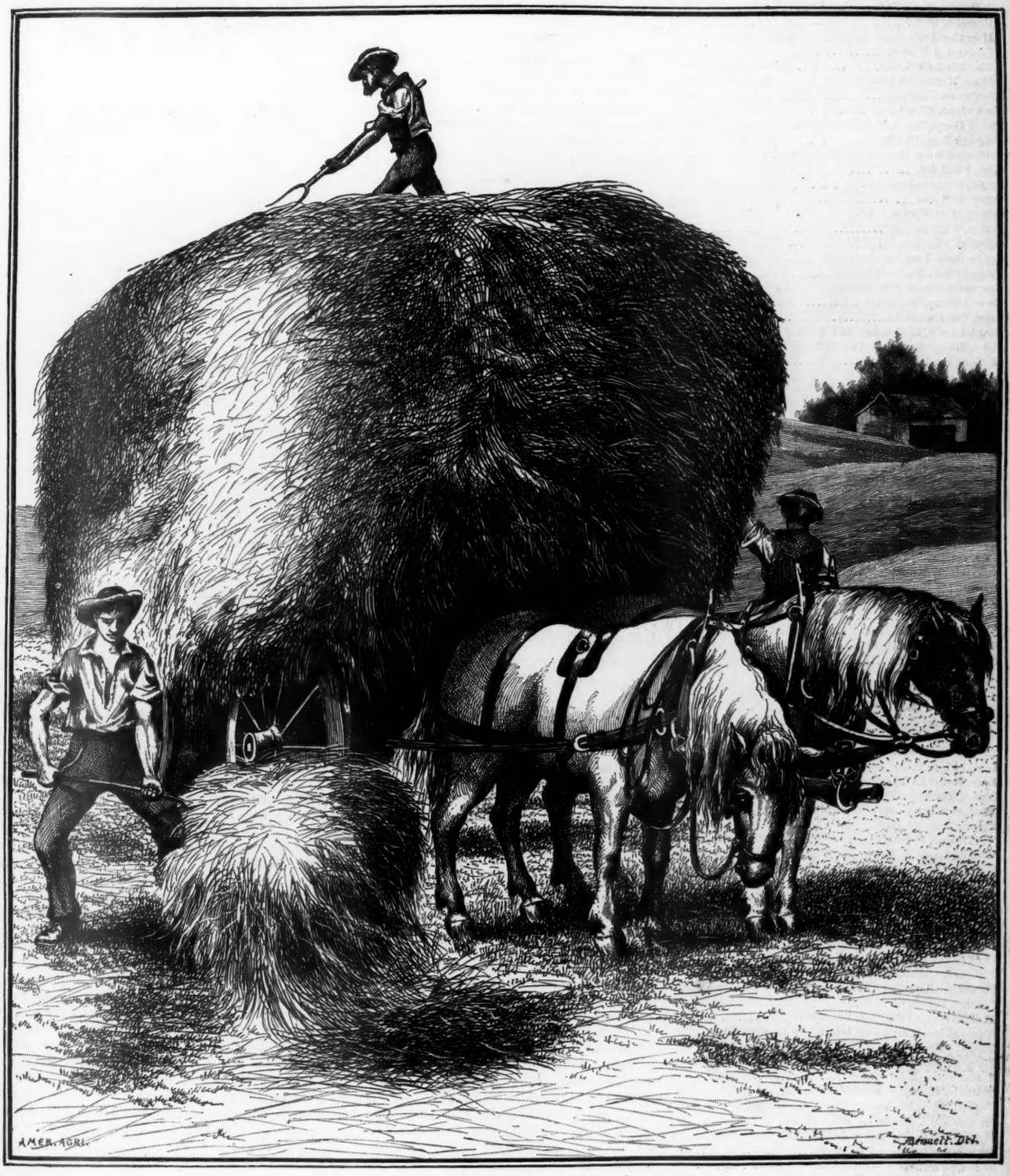

THE LAST LOAD.

Drawn and Engraved for the American Agriculturist.

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July.

And checkered field and grassy plain
Hum with their summer songs again,
A requiem to the day's decline,
Whose setting sunbeams coolly shine
As welcome to day's feeble powers
As falling dews to thirsty flowers.

JOHN CLAIRE.

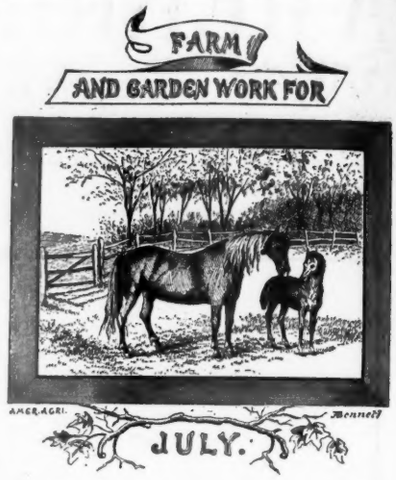
See pages 301 and 308, for matters of special interest to the readers and friends of this periodical.

All friends of agriculture, should cordially co-operate with the new Commissioner in the praiseworthy efforts he is making to give efficiency and character to the Department. Properly supported, Commissioner Colman will, we are confident, be a power in securing the desired legislation at Washington, for the agricultural interests of the country.

The time during which the various articles enumerated in our Premium List can be procured, expires June 30. Elsewhere, however, are described two or three special premiums, presented to such friends as forward us subscriptions during the summer months. Remember that each issue of the *American Agriculturist* is complete in itself, and subscriptions can therefore begin with any number.

The public appreciation of the services of those conspicuous in reducing postage rates in this country, received a signal illustration on Memorial day, when a monument—the gift of ninety-two Sunday schools—was unveiled in New Jersey to the memory of John Hill, the father of two-cent postage. By the provisions of the new act, passed last March, all domestic first-class matter, including drop letters at letter carrier offices, will, after July 1st, be charged at the rate of two cents per *ounce*, or fraction thereof, instead of two cents per *half-ounce*, or fraction thereof. In other words, our friends can forward us lists of subscribers twice as long, after July 1st, as before that date, for the same amount of postage. Direct plainly to *American Agriculturist*, 751 Broadway, New York, giving in full the post office address of each subscriber.

Mr. T. S. Teas, one of our subscribers in Henry Co., Ind., writes us May 26th: "I value your *American Agriculturist*, above all other publications of any and all classes, for its distinctive quality of refusing to publish medical advertisements. No other that I am acquainted with, inexorably refuses them. If the 'medicine men' go on at the present ratio for ten years longer, the entire American press will be subverted." We are now, as our readers will observe, making the exposure of frauds and charlatanism in all its forms, a most prominent feature of the *American Agriculturist*. While these exposures naturally elicit threats and vituperation, especially from those who attempt to deceive under the guise of respectability, we shall continue them without fear or favor. Two years ago an individual called at this office, asserting that he was the possessor of half a million of dollars, which he would expend in prosecuting the *American Agriculturist*, unless the latter should print seventeen manuscript pages of retraction, which manuscript he held in his hand. He was subsequently broken up by the United States government. Such instances of personal threats are not infrequent. When those who have been exposed by us indulge in billingsgate and vituperation, our readers can readily understand that they have been very badly hurt, no matter who they are, or who they claim to be. Every subscriber will confer a benefit upon all other subscribers, and the public generally, by immediately notifying the *American Agriculturist* of any suspicious schemes coming to his knowledge, and forwarding us any letters, circular letters, or circulars, received by him which have the stamp of fraud upon them.



July finds the farmers of the whole country where grass grows, in the midst of haying and harvesting. Nevertheless the corn and other hoed crops should not be neglected. At the East we can almost always buy corn cheaper than we can raise it, unless we take into account the value of the crop as the best one to put upon sod ground, and its use as a weeding crop. If, therefore, we neglect to keep a corn-field clean, we lose a great part of its advantage to us. The cultivator should be kept running until the corn is so large that it is impossible. Clean culture is the result to strive after. The old rotation of corn, roots, grain, clover, wheat, and grass, where barn-yard manure, with its myriads of weed seeds, is used, is certainly good. In this, two crops, each requiring thorough weed-killing tillage, come together, and after them we should have comparatively clean land for several years. In traveling in any direction at this season, and later, one sees how little attention is paid to this business of weed-killing—next month we shall be able to recognize a potato field by the ragweed which will, in more than half the fields, overtop everything. When the corn is cut in September, this and other weeds, particularly beggar-ticks, will cover the whole face of the earth and have from that time on uninterrupted possession of both soil and sunlight, to ripen their seeds. When the ground is well covered with clover, grass and grain, the weeds make little show, but on any bare spot they will assert themselves, and on old farms more or less neglected, the manure will be full of seeds of white daisies, smartweed, ragweed, etc., which come from plants which make small show, but still are present. Top-dressing of grass land is most effective, when applied as soon as possible after the hay is off. The same is true of land newly seeded to grass. If we have a dry July and August, a well seeded field often burns out under the scorching sun, but a light and even dressing of fine manure, or muck and manure compost, will save it and give a fine crop of hay next year. Successive plantings of fodder corn are in order all through July, and Golden Millet will make a fine crop of hay on good land—but do not let it get overripe, whenever sown. Look well to the pastures. The water supply may fail, greatly to the falling off of milk, and where mares and foals are at pasture, the foals may get a back-set which they will never get over. Insect parasites upon live stock have now the heyday of their lives. Tar upon sheep's noses defends them from their *œstrus*. Carbolic or tar soap, rubbed upon the backs of neat cattle, repels the fly that lays the egg, that hatches the grub, that grows in the back of kine, and is called "warble." The same applications are more or less effective in preventing the bot fly from laying her yellow eggs upon the hairs of the horse. Some means ought to be discovered for easily removing these eggs—some solvent which will loosen their hold and enable us to wipe them off. We know of nothing better than warm soap and water, and a knife. Ruta-baga turnips may be sown up to the middle of the month, and even later, and always in drills.

Kitchen and Market Garden.

As soon as a crop is off, occupy the land with something; if not a succession crop, then plow, etc., and sow rye, to afford early food for the cows, and to be turned under as manure for a crop. Buckwheat is an excellent crop to occupy the land; it should be turned under before frost. ....Do not cut asparagus too late; next year's crop depends upon a vigorous growth of tops. Pull the large weeds that appear. Do not allow the tops to be cut for decorating rooms, etc....Keep up a succession of beans by planting at intervals; when Limas reach the tops of the poles, pinch off the ends of the vines....Set out late cabbages; soil from which early potatoes were taken, well manured and prepared, is excellent for them. Keep down weeds by free use of the rake, and suppress all insects....Set celery on the surface (not in trenches), six inches apart, on well-manured rows. Keep clear of weeds, and replace any that die....Plant early varieties of sweet corn for a late supply....Onions near a market pay better if sold while green than if allowed to ripen. Wash, remove all loose skin, leaving the tops on, and tie in bunches of three to six, according to size....Beets, carrots, parsnips, salsify, and other roots should be cultivated between the rows until the leaves prevent....Keep down weeds among squashes as long as the cultivator can be used without injury to the vines; then pull the large weeds. The eggs of the squash-bug are laid on the underside of the leaves; search for and crush them. Paris green has been used on squash-vines with good results. Treat cucumbers and melons of all kinds in the same manner....If the tomato rot appears, cut off all affected fruit and bury deep, or burn. Watch for the worm and handpick....The ruta-baga, or Swedish turnip may still be sown very early this month, and Yellowstone and Aberdeen later. Thin early.....This is the great weed month; keep land, from which a crop is taken, occupied, as already suggested. Among crops, keep the cultivator in motion as long as can be, without injury to the plants. A heavy, sharp rake can be rapidly run over the ground, and is most effective in destroying young weeds. Pull by hand all large weeds that appear in the rows. Weeds with young seeds should never go to the compost heap. Burn them.

Orchard and Fruit Garden.

Those who live near a market, find early apples more profitable than winter sorts, as they do not bear transportation to a distance. If the fruit, as it comes from the trees, is dumped into old, dirty barrels, and sent to market, the returns will be small. Bushel crates, or ventilated boxes, are the best packages. Carefully assort the fruit, and leave what is not good enough, for "seconds" at home....If the soil of a newly planted orchard can not be kept free of weeds, and the surface loose and mellow, by the cultivator, then it should be covered around the trees with a mulch....Pruning of large trees may be done now. If proper care is given to young trees, much, if not all, future pruning may be avoided. All branches start from buds at first, as a tender shoot. The shoot will become a branch; if it is where a branch is not needed, rub off the shoot while tender....If intending to exhibit at fairs, prepare fine specimens by proper thinning of the fruit... Treat grafts, set this spring, as if they were young trees, and control their growth by pinching....When the fruit is off, remove the mulch from strawberries, and fork in old manure. Cut off runners, unless new plants are needed....Cut away old raspberry canes as soon as the fruit is off; tie up shoots for next year, and hoe out all others....Tie up fruiting shoots of grape-vines; thin fruit on vines bearing their first crop. Remove all volunteer shoots not wanted. Pinch laterals to one leaf each time they start. Handpick all large insects. See article on mildew. Summer layer the grape; select a shoot which is so hard that it will not rot, and bury two or three joints a few inches below the surface; turn up the end and tie it to a stake.

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Flower Garden and Lawn.

In hot weather, grass will grow less rapidly, and the lawn should be mown less frequently. Leave the clippings to serve as a mulch....Cut away flower clusters as soon as they begin to fade, unless seeds are wanted, and then leave only as many as may be needed....Provide gladioluses, lilies, and all other plants that need them, with stakes, which should be inconspicuous. Dahlias are at their best at the time of heavy winds, and need careful staking....Greenhouse plants, planted out upon the lawn for their ornamental effect, should not be allowed to be stunted by lack of water; those especially that are plunged in their pots, should have sufficient water....The beauty of all ornamental bedding and ribbon planting depends upon having the lines between the plants of different colors distinctly marked; to secure this, cut away all branches that run across from one sort into another.

Greenhouse and Window Plants.

Nothing is required with these, save to see that no injury comes to them, whether they are placed out of doors, or still remain in the greenhouse.

The Outlook for Southern Agriculture.

No doubt a stranger visiting a southern locality for the first time, may see many things which he thinks deserving of criticism, but it is always safe before one criticises anything new in a strange place, to wait until he understands something of the necessities of the case. The whole agricultural practice of the South, necessarily differs greatly from that of the North. Climate has an important influence, which is not at once apparent to a stranger. And when one sees old fields turned out, and cotton and corn grown in crooked beds and furrows, and many other practices which are new and strange, he may justly believe that these ways are thus, because they are the best under the circumstances. But it is quite possible to change one's circumstances in many cases, and after some years' experience with southern agriculture, it seems quite evident that southern farmers can make better use of their land than to so thoroughly exhaust it by continued cropping in cotton and corn, as to disable it from producing even the common weeds. Rotation of crops is taught us by nature. Any one may see how nature practices this rotation, in the springing up of pines and other soft woods, on lands from which hard woods have been removed, and the growth of hard woods upon cleared pine lands. When the soil has been exhausted of certain elements which have furnished food for corn, cotton or tobacco, any one of these crops may follow another without any indication of distress, but when the whole of them have been grown successively, and the soil has been exhausted of every constituent required by these crops, there is still food enough left for grass, if the process of exhaustion has not been carried too far. No doubt, as a rule, southern farmers have gone to extremes in their disregard of these requirements of the crops, and the ability of the soil to supply them: hence the great amount of poor, abandoned land which is left to grow up to weeds, and "old field" pines and oaks. It cannot be charged against southern farmers that they are any worse in this respect than their northern and western brethren have been. A judicious rotation of crops is the first step toward this better way and there is now a favorable opportunity for beginning a new course in this respect. A great European war appeared to be imminent but a short time ago, and many think that it is postponed for but a short time. Should it occur, its first effect probably will be, to affect the cotton market disadvantageously. This will force southern farmers to grow some other crops, and the first and best of these crops will be grass and clover. Then will follow the feeding of stock, the production of beef, mutton, pork, wool, butter, cheese and fruit, and other valuable and indispensable products. These will not only bring in money to the South, but will keep money there, and the very greatest need of the South—money—will very soon be supplied. With the increase of food products will soon follow manufactures, which will occupy the magnificent water powers, and utilize the vast wealth of timber and valuable minerals. Then will follow railroads, shipping, a great increase of population and prosperity, and all these will make the South what its great natural wealth and unexcelled climate fitted it to be—the richest portion of the United States.

Full-Blood and Thoroughbred.

There is both a distinction and a difference between these two words. Of course, they mean pretty nearly the same thing, for a thoroughbred is certainly a full-blood—but the converse is not true. The inquirer naturally asks: "Why is not a full-blood necessarily thoroughbred?" Because hap-hazzard breeding is common, and though both sire and dam are full-bloods, or thoroughbreds, if you please, they are not necessarily well mated.

The idea of thorough breeding is breeding with an object. It involves a study of the points of form and disposition, health, constitution, and perhaps nerve power, of both prospective parents. It involves, too, the study of pedigrees on both sides.

We study pedigrees, not so much to find out if an animal is pure-blooded as to know what the blood has accomplished in past generations. Familiar examples of this sort of breeding and study of pedigrees early occurred with the English race-horse, and on this account the breed which resulted from all this painstaking testing and study, was called "Thoroughbred." Horsemen have tried to have this good word confined to horses alone– as if there could be but one thoroughbred race of anything. For our own part, we believe in thoroughbred men as much as we believe in thoroughbred horses and cattle. So far as horses are concerned, the name is at present confined to the English race-horse; and yet the Orloff trotters of Russia are just as carefully bred, and there are families of Oriental (Turkish and Arabian) horses, which boast longer pedigrees, and probably equally thorough breeding. Among other classes of animals, we find, now-a-days, that not only is purity of blood demanded, but pedigrees demonstrating it; not only pedigrees, but certified and recorded pedigrees. This is enough to satisfy common breeders, but not a thorough breeder. He will inquire, say of a horse: "What speed had his sire? What trotters has he got? any in the twenty class? What was the sire's dam?"—"Two-thirty to road wagon!"—"Is that so?"—And so on, until he gets the whole story of records and reports. If the subject is a cow, the questions will differ, but not the principle. And when generation after generation has been bred in this way, and the crossings have proved good—have "nicked," as they say—we finally arrive at a condition of things, when we may say that the animal is a thoroughbred as well as a full-blood. But let it not be thought, that simply pedigrees, study, and painstaking in the breeding of animals are sufficient, even if continued for many generations. Discretion, and those intuitive perceptions of animal characteristics, called the breeder's instinct, are essential factors. Besides, inasmuch as the wisest of us don't know much, "good luck" is to be hoped for, and is certainly an element of final success in breeding, however much we try not to let it enter into our calculations. Finally, results are needed all along the line, and especially at the nearest end of the pedigree.

Disposing of Early Potatoes.

It is the manner of disposing of a crop which makes the profit in nearly all cases, but especially

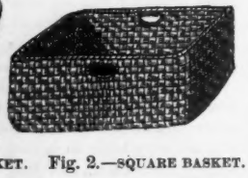


Fig. 1.—ROUND BASKET. Fig. 2.—SQUARE BASKET.

is this true in regard to early potatoes. To get the best price, these must be in the market as soon as possible; a week will give one an opportunity of disposing of a whole crop before a competitor can bring in his produce, and the prices fall. New potatoes are easily damaged; the skin slips readily, and this spoils their appearance, and of course their value. The use of a convenient package for the potatoes, in which they can be handled and carried to the consumer, brings them to him in the nicest possible shape. Purchasers like to see neat, clean packages, and are pleased to know when they contain full measure. A splint basket of the shape here shown (fig. 1), makes an excellent package, but is not economical of room, and one basket can not be set upon another without rubbing the potatoes. If the baskets are made square, with straight sides, as at figure 2, they are better. But a wooden box is more durable and convenient. Such a box is shown at figure 3. It is sixteen inches long, thirteen

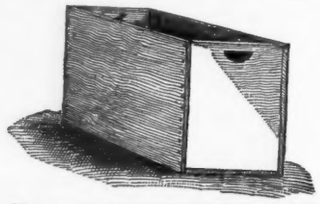


Fig. 3.—BOX FOR SHIPPING POTATOES.

and one-quarter inches wide, and thirteen inches deep; this makes one heaped bushel when the box is level full, containing two thousand seven hundred and fifty-two cubic inches. Such boxes lie close together in a wagon box and no space is lost.

Feeding Chickens for Market.

Much profit is missed by feeding young chickens too long. The early broods should now be ready for feeding. It is better to have them already fed, for then the cockerels will be ready for sale, and the pullets will be so far forward as to be ready to begin laying early in the fall. But if the chickens have not been fully fed, the cockerels should be separated now and the old cocks turned in with them. At any rate the cocks should be separated from the hens at once, as they are a worry and a nuisance to the hens, and more eggs will be laid without them than with them. Probably no more hens will set, but as the eggs will be good for two weeks after the separation, this may be made at once. The best of the young cockerels should be selected for use next year, and the rest should be forced for market and disposed of at once. They will bring more now than at any time later. An excellent feed for them is corn-meal, mixed with boiling hot sweet skimmed milk. This gives the flesh a fine flavor and a white and clear appearance, which adds to the market value. The feeding should not be continued over two weeks, and if the fowls have had all they will eat, they will be as fat as they can be made. Longer feeding will not add to their weight, as it is apt to produce disease.

CULTIVATION OF CORN.—In cultivating corn, it is necessary to know something of the manner in which the roots run in the soil. Some years ago we learned a lesson in this respect, which wholly changed our practice in cultivating. It was then the custom, as it is now to a great extent, to plow the corn, and to work the middles quite deeply. A heavy rain fell one night, and washed the soil out from the middle of a corn field on a hillside. The roots of the corn were left, showing a mat of fibres, which spread not only from row to row, but mingled with the roots from other rows, eight feet distant, so closely, that care was required to trace and separate them. These roots were just below the surface, and on a part of the field which had not been plowed, but had been hand-hoed because of the declivity of the ground. Had this ground been plowed, as the level ground had been, these roots would all have been broken off, and of course, the growth of the plants checked considerably. Since then, our corn has been cultivated with the horse-hoe, and not with the plow, excepting on one occasion, which proved very clearly the advantage of shallow cultivation. It was a field of sweet corn, which was plowed by a hired man contrary to orders; and as the weather was dry, he plowed it all the deeper. The corn at once stopped growing and never recovered, and did not bear one ear. The remainder, which was cultivated not over two inches in depth, made a fair crop in spite of the hot, dry season. There may be cases in which the corn may be plowed, as in a heavy soil and a wet season, without harm, but as a rule, shallow cultivation with the horse hoe or cultivator is best for this crop.

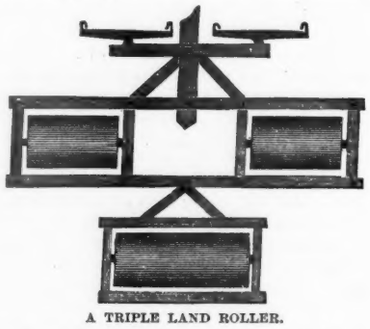
Flatulent Colic in Horses.

When Prof. Gamgee was in this country, he said to the writer, that more horses died of colic, than of any other malady, and he suggested a remedy which has been published in the *American Agriculturist*, and been found efficacious, we doubt not, by thousands of horse owners. The remedy, simply stated, is copious injections of cold or tepid water—that is, cold but not too cold. Water that has the temperature of the air in the summer time is right—say seventy to ninety degrees. The best way to apply it is to use a large funnel, holding about two quarts, to which a rubber tube, three feet long, is attached, and this is terminated by a tin nozzle about fourteen inches long, tapering to a quarter-inch opening. This end should be protected by a lump of solder, so as to prevent injury to the parts. The funnel is filled with water at the level of the horse's rump, and then lifted up as high as possible. Four to six quarts will usually be sufficient to start the wind; then stand clear. Relief follows at once.

There are many causes of colic, as a sudden change of food, hard work or active exercise after feeding, very rapid eating (as after long fasting and hard work), the chill experienced when exposed to too rapid cooling off after sweating—these are some of the common causes, and are conditions to be avoided at any rate. Care will almost always prevent colic, and the above simple remedy will generally cure it; we have never known it to fail.

A Triple Land Roller.

A great objection to the use of the roller is, that it tears up the ground for a considerable space when it is turned around. Another is, that the weight of the tongue and frame bears heavily upon the necks of the horses, and often causes sores. The roller here shown has neither of these objections. It is made in three sections, and the hinder section balances the weight of the frame and tongue. In turning, the whole implement moves easily with the side roller as a pivot, and avoids all disturbance of the soil. The center roller is made a little longer than the side ones, and thus secures the complete pulverization of the soil. The rollers are easily made, either of solid logs or of round discs, to which narrow bars are spiked. The best roller is the heaviest, and cast iron is the best material; although much cheaper ones may be made of artificial stone molded in wooden cylinders. The material may be mixed as follows: one barrel of good hydraulic cement is well mixed dry



A TRIPLE LAND ROLLER.

with three barrels of coarse, sharp sand. A sufficient quantity of the mixed cement and sand for one section is then wetted and worked up into a thin mortar, and is at once put into the mold; broken stone, first wetted, may be worked into the center, around a square shaft of oak timber, carefully centered. The whole is well rammed down, and more is added and rammed as it is put in, until the mold is filled. The ends of the roller should be of

clear cement and sand for a few inches, only the interior being filled in with stone for the sake of economy and for weight as well. When the mass is dry and solid, the mold is taken apart. Wing gudgeons are fitted into the oak shaft and run in wooden boxes, bolted to the under side of the frame. In this way a most excellent and useful roller, equal to a cast iron one and quite as durable, may be made for a cash outlay of about three dollars only.

The Care of In-Coming Cows, and the Rearing of Calves.

When a cow is approaching the period of calving, she needs close watching. It is well to moderate the feed and give only good hay. When the udder fills out, that should be watched. If any hardness appears in it, it should be gently rubbed with the hand, and if there is milk in the teats, it is well to draw it out. As soon as the teats fill up fully, the cow should be removed to a separate stall, enclosed and kept for the purpose, in some place distant from the other cows. This avoids the uneasiness so often shown by other cows, when one is in parturition. Here the cow should be left loose and watched closely, but quietly, until the calf is dropped, when it will be best to remove it at once out of sight and hearing of the mother. Tie up the cow until the after-birth has been ejected. This should be removed, and buried. The cow should be fed with a pailful of warm gruel of oat-meal, linseed-cake meal, or bran, and kept quiet for a few hours, after which she should be milked. After twenty-four hours she may be returned, if all is well, to her usual place in the stable, and most probably she will not miss the calf or trouble herself about it.

A calf thus treated, should be fed with the first milk, as soon as it is taken from the cow. This may be a tedious job, but with patience and kindness, the young animal may be taught to drink, and gain such an affection for its foster nurse as to be quite docile and manageable. After three or four days, the calf will drink its milk without any trouble. It should be kept warm and comfortable. After the fourth day, the *colostrum*, or calf milk, ceases, and the milk can go into the dairy. Now begins the training of a calf which will make a good cow, and a gentle, docile one. The sweet skimmed milk from the dairy is warmed to eighty degrees, and is then given to the calf, preferably, three times a day; and not more than four quarts at a meal. The warmed milk will keep the calf in excellent condition, but the milk must not be warmed to more than eighty degrees, and never burned. Scalded milk causes constipation, which ends in diarrhœa and painful spasms of the bowels. If this should occur, doses of one quart of new milk should be given twice a day, and no more, as medicine, as well as food. Relief to the bowels will be given at once, and the former feeding may then be resumed.

During the first month of a calf's life three meals a day of four quarts each, will be ample. The second month, the meals may be increased to five quarts each, and the calf encouraged to take from the hand a little ground corn and oat-meal, a teaspoonful at first, only, being put into its mouth with some sugar in it. Gradually the meal may be increased, until it will take a small handful, still sweetened. Sugar, at four cents a pound, is a very cheap and useful food for a young calf. In time, the feeding may be increased, until at three months, the milk amounts to six quarts three times a day—still given warm, but gradually less warm—and two or three ounces of the meal. No sour milk or buttermilk should be fed. Where good calves are to be raised, deep setting of the milk should be practised, so as to have sweet skimmed milk for the calves. During the third month, a little sweet hay should be given, or the calf may be tethered in a small lot, where there is good grass.

It pays well to give calves good care. Calves are the seed of the dairy, and all improvement in the stock must come through them. The more docile and affectionate a calf can be made, the more quiet and useful the cow will be. Hand-feeding and tethering on the grass are excellent means of discipline for a calf. A little switch now and then will be found useful to repress the exuberance of playfulness in a calf, and teach it to realize its responsibilities and its duties. It should be taught to lead at this time, so that before it is six months old, it can be handled as easily as an old cow, and it should then be tied up in its stall nightly, as the cows are.

When milk is sold, and it is desired to rear a calf, a substitute may be found for the milk. English farmers use what is known as "calf meal," and various other preparations, made on the basis of supplying in liquid form the required nutritive elements, as nearly as may be, in the same form as they exist in milk. Pea meal forms the chief ingredient in these foods, and it contains a substance which has precisely the same elements as the caseine of milk has. This substance is also called *legumin*, and exists in peas and beans, and other leguminous seeds. It may be coagulated, and made into a sort of cheese, which has very much the same composition as ordinary cheese. Either pea or bean meal, then, may be used as the basis of a substitute for milk. Linseed oil-cake meal will furnish the fat required in an acceptable form, and coarse wheat middlings, or bran and oat-meal, will supply the phosphates. These substances may be mixed as follows: Ten pounds of finely ground peas or beans; six pounds of linseed oil-cake meal; ten pounds of fine bran; and six pounds of oat-meal. These are better mixed by grinding the grains and meal together, than can be done by hand, but a sufficient mixture can be made without this. One pound of the mixed meal is stirred slowly into hot water, so that there are no lumps, and it is then boiled slowly for three hours, adding for the pound of meal enough water to make four quarts of gruel. A teaspoonful of salt is added, and one tablespoonful of sugar. Every nutritive element to be found in milk, is contained in this preparation, and the thorough cooking makes it digestible. As good a calf as can be brought up on milk, may be reared on this food. It is best, at first, to add this gruel to the milk, gradually, during a week, beginning with one-fourth, and ending with the gruel alone. The calf will not then object to the change of food.

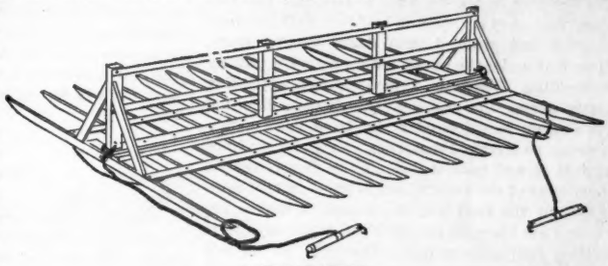
Diarrhœa is the most exhausting of all diseases of a calf. Not only is the food not digested; but the poor young thing suffers the severest pain in the spasms which accompany the disorder. It is caused by indigestion, almost always produced by overfeeding. This frequent blunder of overfeeding is the bane of young animals, which, instead of being benefited by the excess of food, are greatly injured by it. Sour milk is also a cause of the disorder, but not so much, when it is not given in excess. Naturally a calf takes its milk slowly, and the food is coagulated in the stomach in fragments, as it is swallowed in small mouthfuls. When a calf is fed by hand, and swallows four or five quarts of milk very hurriedly, the food curdles in one mass, which can only be attacked by the gastric fluid on the outside, and is dissolved very slowly. The solid lump ferments, gives forth acid, as well as pungent gaseous products, and very soon produces the disease. Great care should be taken to feed a calf with warmed milk (not less than eighty degrees), and to feed slowly, giving it time to breathe, and rest between the swallows. The milk coagulates more quickly at eighty degrees than when cooler, and the small quantities swallowed are curdled very soon, so that the whole forms a porous, spongy mass in the stomach, and digestion can go on very quickly.

If for any reason a calf is suffering from diarrhœa, the best cure is, a light dose of castor oil, or twice as much pure olive oil. An injection of one pint of warm water (one hundred degrees), with a tablespoonful of olive oil, and a teaspoonful of laudanum, shaken up to form an emulsion, will relieve the spasms and soothe the sufferings of the calf. All food should be withheld, excepting one quart of new, warm milk, given twice a day, continuing this until the bowels are in good order again.

Every dairy should be furnished with an injection syringe, a milking tube, and a trochar and canula. Either of these may save an animal in case of an emergency, which may happen at any time. A syringe, with which an injection can be given, may save a valuable calf from an early death by diarrhœa or dysentery. A milking tube, to be used in case of a sore teat, cow pox, or garget, may save the udder of a cow, and, of course, save the cow; for the udder is all there is of the cow for dairy purposes. And a trochar and canula will relieve a case of bloat or hoven, which is always likely to happen when cows are feeding upon green clover or corn fodder. To be prepared for emergencies like these is one of the first duties of the dairyman.

Hay Gatherer.

I send with this a drawing, father made for me, of our hay gatherer, with which we can stack or rick in the field, fifteen or twenty tons per day. Having the hay cut and raked in windrows ready to be stacked, we then have one man to stack, two to pitch up, and one boy to run the gatherer. It is made by having two by four inch pieces of twelve feet long for teeth, held together by a piece of two by six inch stuff, sixteen feet long, with a bolt through each tooth; two fence strips of inch stuff, six inches wide, keep them from spreading. Three or four upright two by four posts, four feet high, with cross fence strips, are set on the main beam. This fence holds the hay, and is braced at each end as shown in the drawing. There is on the bottom of each end runner a shoe one foot wide, two inches thick, and two or three feet long, to give the teeth a downward inclination. The teeth are tapered from the under side at each end, so as not to run into the ground. There is an iron ring at the bottom of each end post, on each of which is another ring to which a rope is fastened. These ropes are sixteen feet long or more, and a whiffletree is attached to the end of each. This contrivance takes up the hay to the stack and picks up any dropped hay going back. It is the greatest labor-saving machine I know of, and may be new to many of your readers. It is very useful in our western country.



HAY GATHERER.

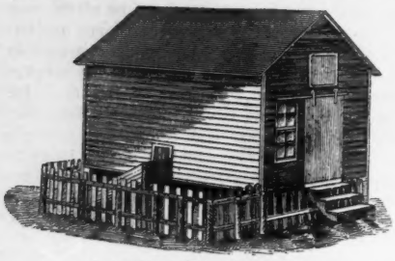
ELLIS CHENEY THAYER.

Wabaunsee Co., Kansas.

WATERING HORSES.—Horses working in the field, require watering more than three times a day. When a horse plunges its head deep into the trough to drink, it is injuriously thirsty, and has been suffering. While the owner visits the water jug kept in the shade, about once every hour, he scarcely ever thinks of his team, laboring in the dust, and suffering from thirst. It is a good plan to carry a supply of water to the field for the horses on a light drag which is as easily taken, as to drive the horses or lead them to the field in harness alone, and it would be a grateful change to carry a bunch of fodder along, to give them a mouthful when they rest at times. Regularity in watering horses is a point which ought to be carefully observed, because they will worry, when thirsty, until relieved. Soft water for drinking purposes is very much preferable to hard water.

A Convenient Pig-Pen.

F. H. Hannah, Du Page Co., Ill., writes us: I send you a plan for a village pig-pen, which I built two years ago and like very much. It stands on eight cedar posts, set three feet in the ground. The yard is fourteen feet by twenty feet, being four feet wider than the building, and four feet longer, extending under the whole, with an incline running



A CONVENIENT PIG-PEN.

up on the outside of the building to the feeding floor, where there is a door two by three feet. The building is ten by sixteen feet, and ten feet high; first story six and one-half feet, with two-inch tongued and grooved tight floor; second story, three feet under the eaves, with a door for putting in bedding. There is a feed trough extending partly across the front of the feeding floor; it has a swing partition over the front edge, with a fastener so arranged that when you put your knee against it, and push it back, a pin drops over the inner edge of the trough, and holds it in that position until the feed is in the trough, so that a pig can not get his nose into the pail while anyone is putting feed in the trough. The post on one side and end of the building forms that part of the yard; the other side and end has longer posts, to prevent the pigs from getting out. The front door hangs on over head rollers, and is pushed past the window when open, on the inside. There is a partition three feet high between the sleeping and feeding floors. The advantages of this pen are, economy in ground room, cool, comfortable yard, which the pigs enjoy very much in warm weather, and cleanliness and neatness in the building, and no place about it to harbor rats. The cost can be much or little, depending on the size, style of finish, etc. Mine cost about thirty dollars, being sheeted up with pine boards, and covered roof and sides with tarred felt paper, shingled with good shingles, and sided with clear white pine siding, and painted.

Ditches under a Highway.

We are glad to see that draining tiles are coming into use more and more every year for carrying water under the highways. Perhaps the manufacturers should receive credit for inducing the highway commissioners to adopt the improvement; for improvement it certainly is, or might be. We have seen culverts built of stone across a highway, a yard wide and a yard high, to carry off a stream of water that would have all gone through a four-inch pipe. We have seen a sluice-way, made of two inch plank, a foot square, laid almost on the surface of the road, and dirt and gravel drawn to cover it up, leaving a ridge like a new-made grave a foot high, clear across the road.

This is probably an extreme case, but the same error of judgment shows itself in laying down tiles under the road. In not one case in ten, are the tiles laid deep enough. If the good man above the sluice-way should feel like deepening his ditch along the side of the road with a plow, or hoe, not to say with a spade, this shallow underdrain across the road is an effectual estoppel on all his efforts at drainage. On the other hand, if the tiles across the road were laid a foot deeper than the present ditches, possibly the owners of the land, or the intelligent path master—if one could imagine such an official—might occasionally scrape a little of the dirt out of the ditches with a hoe, and thus in process of years lower the water to the level of the drain.

There are path masters who take the *American Agriculturist*, and to them we appeal. We know the plan will work, for we have tried it. We were path master ourself, for one year—and only one. One was a dose, for both us and the district. But during this one year of official life, we constructed one tile drain across the road, and we put it down two feet deeper than the old stone drain, which we still left as before, about half a rod to the south of it. All the wise men said the new tile drain would stop up, and so we did the work at our own expense and left the old sluice-way to carry off all the water it could get—but it has never had any. The deeper drain monopolizes all the water.

Please try the plan. We do not care how deep you go, only that we do not want you to make a hole deep enough to drown any of the children in on their way home from school. Of course, you must have a hole, and this hole will be filled with water to the level of the old ditch. This hole may need cleaning out occasionally, but the water will go through the tiles just as well as if the tiles were laid so that the bottom of the pipes were on a level with the surface of the ditch, and the deeper ditch is no more liable to stop up. Who will try it? And then, if that is your last official act, and the next path master should be induced to deepen the ditches, so as to carry off the water from the hole at the lower end of the drain, the improvement to the road and to the land adjoining will be so great that you will have done one good deed to place to your credit.

A Granary Hoe.

The engraving shows a simple and easily made tool for removing the grain from before a fanning mill. Replace the head of an old wooden rake

A GRANARY HOE.

with a thin board of the same length as the rake head. The grain is pulled away by using the implement in the same manner as an ordinary hoe.

Famous Families of Cattle.

Systematic breeding involves the study and preservation of family traits. It was a long time before American breeders of Jersey cattle understood this. Breeders visiting the Island of Jersey used to be told: "It is all one breed. All the cattle here are pure." And so for years they bred them simply regarding purity of blood as the essential thing. At last the Jersey Herdbook was established, and the Herd Register, and then people talked as if it was all-sufficient if an animal were only registered. Breeders soon found out, that there were as many scrubs among registered as among unregistered Jerseys. Certain breeders made their boasts of the performance of certain cows and of their daughters, but this was very indefinite, and in a degree unreliable, and the effect was seen in the actual suppression of the statements of remarkable yields of milk and butter lest they should not be believed. Many years ago, Col. R. M. Hoe, of printing-press fame, imported a bull Saturn and cow Rhea. These produced two famous animals, a bull Jupiter, and a cow Alphea. The cow proved a great milker and a very rich butter maker. The summer she was five years old, she gave, when fresh, on grass only, twenty-five quarts of milk, and at this time and at subsequent times, when the milk was carefully tested for butter, eighteen quarts made never less than three pounds of butter. For some reason or other, the old cow is credited in the catalogues with only twenty-four pounds, eight ounces. The facts in regard to this remarkable cow were only known in a very general way until long after. The entire herd was subsequently disposed of at auction, when a number of her daughters were sold, and prices were paid for them which at that time astonished everybody. After a few years, butter tests, conducted at Darlington, drew the attention of Jersey breeders strongly to this family of cows—especially Eurotas's great yield of seven hundred and seventy-eight pounds, one ounce of butter, and a calf, all within less than a year, which has not yet been surpassed. Breeders may almost be said then to have begun to value blood in their animals, on account of its relation to famous producers. They began to look up other members of the Alphea family, and the prices at which they were held rose, though there had been few or no tests, except those made at Darlington. This was in fact the starting of the "Alphea boom," as it was called, and was the beginning of the Jersey boom, as other families came forward, one after another, claiming and demonstrating their claims to extraordinary merit. Let us look into the records of cows of this family.

Alphea's blood descends chiefly through her son Mercury, and his daughters and her daughter Europa. These were full brother and sister, and their sire and dam, Jupiter and Alphea, were also full brother and sister. Thus in Mercury and Europa we find only the blood of the two imported animals already mentioned, Saturn and Rhea. This blood is still maintained in its purity, the exact blood of Alphea.

Mercury is the sire of the following list of eleven cows, which have yielded more than fourteen pounds of butter in seven days, and of several others, which have already approached fourteen pounds, and are likely to exceed it when mature.

Phædra, 2,561..19 lbs. 13 oz.	Marvel, 13,734..15 lbs. 1 oz.
Lerna, 3,634....15 lbs. 12 oz.	Smoky, 13,733..14 lbs. 9 oz.
Nymphæa, 5,141.15 lbs. 8 oz.	Renown, 13,729. 14 lbs. 4¼ oz.
Zalma, 8,778...15 lbs. 5 oz.	Alpheta, 16,531.14 lbs. 2¼ oz.
Purest, 13,730..15 lbs. 4 oz.	Richness, 16,336.14 lbs. 3 oz.
Iola, 4,627.... .15 lbs. 2¼ oz.	

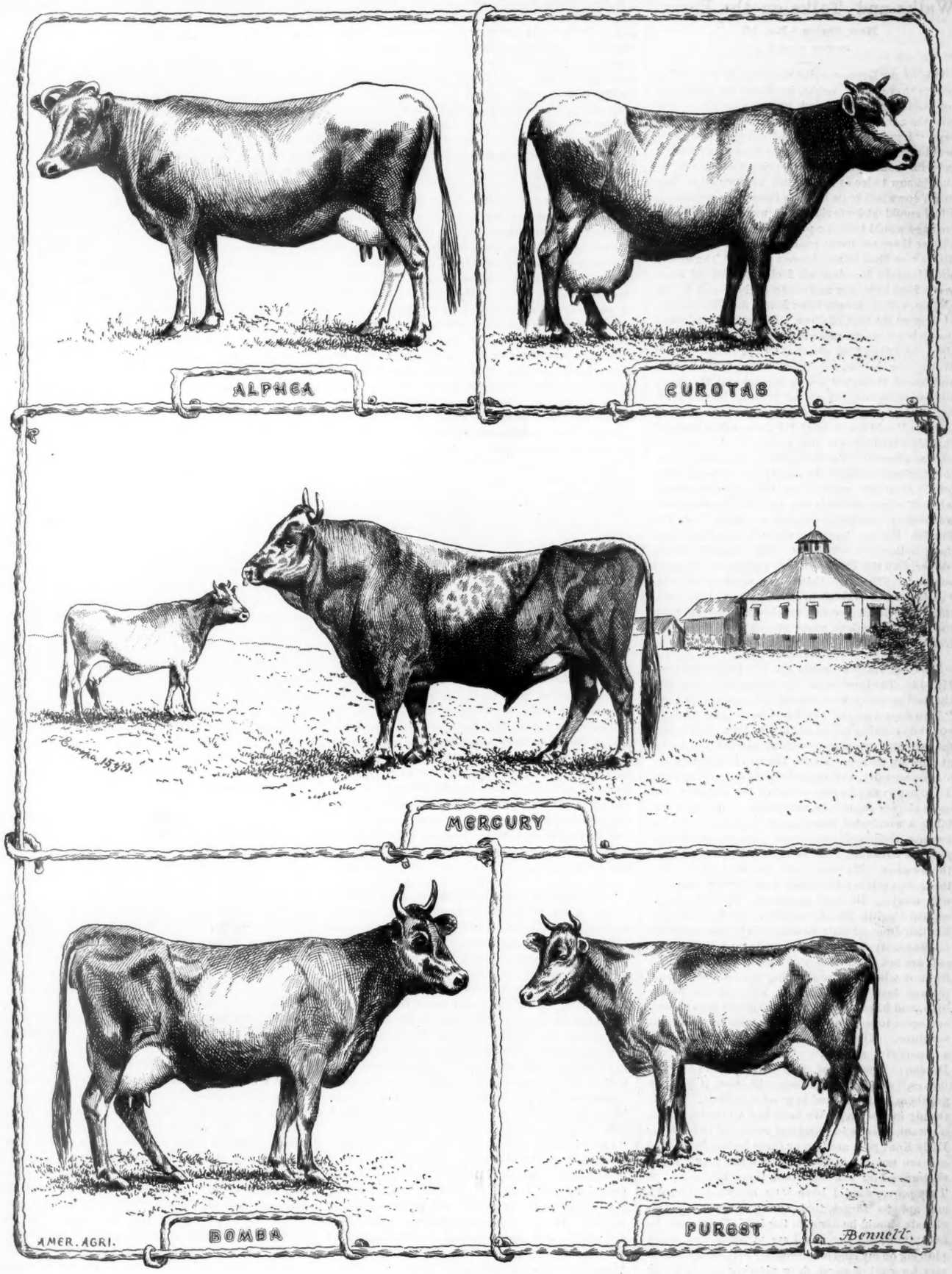
Europa is the dam of Leda, a pure Alphea cow, and of Eurotas (twenty-two pounds and seven ounces in seven days), and of Torfrida (seventeen pounds and six and one-half ounces)—the last two by an English-bred bull, Rioter 2d, brought to this country, and entered contrary to fact, in the American Jersey Cattle Club's Herd Register, as "from Island of Jersey via Liverpool." This fresh blood proved to nick admirably with that of Alphea, forming the "Rioter-Alphea" family. Eurotas developed into a most extraordinary feeder and butter yielder. From her a line of bulls has sprung, chief among which is the Duke of Darlington, whose daughters are proving that the characteristics of their granddam Eurotas and great-great-granddam Alphea, are in good measure maintained. Among them are:

Bomba, 10,330.....	21 lbs. 11¼ oz. in 7 days.
Nazali, 10,327...	15 " 3 " " "
Lady Golddust 2d, 18,361.....	14 " 1 " " "

Leda, a daughter of Europa, bred to Rioter 2d, the sire of Eurotas and Torfrida, produced Black Prince of Hanover, and from him and his sons have sprung other lines of promising females, most of whom are too young to have records of butter production. However, Lanice, 13,656, and Blossom of Hanover, 13,655, both daughters of his, have each a record of seventeen pounds and eight ounces of butter in seven days.

There are other lines, notably those springing from Mercury, now sixteen years old and still useful, and Europa, now eighteen years old and probably still breeding, which promise great things if well handled. One of the most promising bulls is Young Mercury, 7,485, a son of Mercury, by his daughter Phædra, of a pure Alphea pedigree, hence containing only the blood of Saturn and Rhea, the originally imported animals.

We present on the next page admirably executed portraits of several of these famous animals, showing the family characteristics. Mercury in the centre, with Alphea and Purest, show the pure blood. Eurotas exhibits the family traits, with the Rioter outcross, and Bomba, her granddaughter, is still another, known as the Darlington outcross. As a family, the Alpheas exhibit great constitution and feeding capacity, great prepotency, and, of course, immense capability of turning food into butter of fine color and most excellent quality.



TYPES OF A NOTED FAMILY.

Drawn and Engraved for the American Agriculturist.

Walks and Talks on the Farm.

New Series.—No. 13.

JOSEPH HARRIS.

One of my German neighbors says, if any of his onions have thick necks, he takes his knife and pushes it through the neck close to the onion, and slits the neck open clean through; "and then," he says, "I get the very best of onions from these scallions." The same man has been raising mangels for some years. This spring he told me, he should sow twice as much land as formerly. For milch cows and hogs he finds them very profitable. I feel confident he is right. It was supposed that ensilage would take the place of roots. And yet I believe there are more roots grown in the United States now than at any former period. The Jersey and Holstein breeders all feel the need of some green food in winter and early spring—and in this section, spring means from March until the middle of May or the first of June. A hundred bushels of mangels are worth more in May than at any other time. A friend told me, that he once visited Jonas Webb, the celebrated Southdown sheep-herder, and found, though it was in August and the sheep were running in good clover pasture, he was feeding all the mangels the sheep and lambs would eat. —"Yes," said the Doctor, "I have often thought this high feeding was one secret of his great success as a herder. But it must be remembered, that the English climate in August is very different from ours. Here our pastures are very often burnt up, while the probabilities are, that the English grass was watery, and too green and succulent."—"The English farmers have a saying: 'Sheep like roast meat better than boiled.' The English sheep farmer, like the English wheat grower, wants a dry summer. Here, we think, we need more rain. Possibly we are mistaken in that—but at any rate, there is little danger of our sheep suffering from too green, succulent grass at any time from July to September."

This remark was made on Saturday afternoon, May 16. The Deacon and the Doctor had come into the field while we were setting out mangels for seed. "Two days ago the weather was so wet that we could do nothing on the land. The Deacon drew out manure for corn, and yesterday started the teams at plowing on sod. To-day the sun is high and the atmosphere dry, and many farmers are sowing oats. To-morrow, at church, some of the farmers will say a shower would be acceptable! We have certainly a wonderful climate, and it taxes all our ingenuity, skill, and experience to work our land to the best advantage. It is useless to complain of the weather. We must make the best of it. One thing is certain: the American farmer must be wide awake. He must go ahead. Three days ago, we had English March weather. To-day, we have English June or July weather. The thermometer marks ninety degrees in the shade, and it is. Our oats are not sown—many of them—and yet right in front of where we are standing is a crop of onions, planted last fall for seeds. They are ten inches high, and have a dark-green, luxuriant appearance, and seem to be laughing and dancing in the bright sunshine. They have made and are now making a wonderful growth."—"That is so," said the Deacon; "but what may that prove?"—"It proves," said I, "that things will grow, if you can get them in the ground in good condition. Rye is twenty inches high. We have had all the asparagus we want, thanks to nitrate of soda, for two weeks. Early Kent peas are two or three inches high—and oats are not sown, few potatoes are planted, and no corn. You ask me what these things prove? They prove, what I have long known, but what I am apt to forget, that spring plowing in this climate should be done in the fall! There may be exceptions, but as a rule I am satisfied that spring plowing on my land is a necessary evil—made necessary for want of good, deep plowing and thorough preparation the autumn previous."—"If the weather continues favorable," said the Deacon, "I expect to sow my oats on Monday, and shall hope for a good crop notwithstanding the late spring."—"Is the spring so very late, after all, Deacon?" said the Doctor; "is it not the farmers who are late, and could they not get their crops in earlier, if the land was made ready in the autumn? That is the point, and it is well worth thinking about."—"A good deal," said I, "doubtless depends on the land. On light, dry, sandy soil, there may be little advantage in fall plowing—though I am not quite certain that even on such soil it would not be better to plow in the autumn and merely harrow, or gang-plow, or cultivate the surface, in the spring. Anything that will facilitate work in the spring is an advantage. From September to November, inclusive, we have three months of superb weather, and the farmer who does not keep his teams busy, makes a mistake."—"Perhaps so," said the Deacon, "but I have heard you say that it was not a good plan to break up sod in the fall. And I would like to know what land you would plow?"—"Well, Deacon," said I, "look at that land right in front of you. It was in oats last year. Part of it we plowed and worked in the fall, and made all ready to plant. And, in fact, part of it was planted last fall to onions for seed. But we prepared more land than we needed. Now, that land, which was prepared last fall, was easily made ready for sowing and planting this spring—at least two weeks earlier than the land adjoining, which was not plowed. The surface soil, exposed to our hot sun and drying winds, could be 'gang-plowed,' three or four inches deep, and rolled and harrowed until it was as mellow as a garden. But the land where we were obliged to plow, turned up cold, and wet, and sticky, and it is an awful job to get it really fine and mellow for planting. And this is not all. It is not only far more work, but we had to wait and wait, until the land underneath was dry enough to plow. If the land had all been fall-plowed, we could have got the crops in at least two weeks earlier—and that, in our short seasons, is a tremendous advantage. Rye is ready to shoot out in ear when oats are but just sown. It is clear to my mind, that there is a chance for reform in the management of our spring crops."—"Indian corn," said the Doctor, "is the grand American cereal. It can be planted later than oats, and it keeps on growing for weeks, after spring wheat, and barley, and oats, are ripe. This is one reason why we can get on the same land so much more produce per acre. Possibly we shall in time, get a variety of oats that will keep on growing later in the season, without mildewing. But for the present, our only chance of getting a good crop of oats, is to prepare the land in the fall, and sow as soon as the frost is out of the surface soil. And the same is true of peas. We cannot expect a large crop unless we sow early."

F. N. Godfrey, of Cattaraugus Co., N. Y., writes: "You speak of growing Long Orange carrots twenty inches long. I grew them last year, and had roots twenty-four inches long. I have fed out over sixteen hundred bushels of roots the past winter, and do not see why farmers do not grow more roots for their stock."—"That is so," said the Doctor, "more roots and more corn fodder is the solution of your difficulties in preparing land for crops early in the spring. Roots, corn, and cabbages make a large portion of their growth late in summer and autumn, when nitrification is active. It is not complimentary to our boasted enterprise, that we should import millions of cabbages from Germany every few years."—"Don't talk cabbages any more to me," said the Deacon. "I could hardly give them away last fall—and then the green worm is a great nuisance."—"I have great hopes," said the Doctor, "that the plan suggested by our friend at Painted Post, of killing the worms with ice water, will prove a practical success. If so, it will not be difficult to put a tank on wheels, and water several acres a day with a force-pump, or in some other convenient way."—"Great quantities of cabbages," I said, "are grown in Cattaraugus county and sent into the oil regions. One farmer in that county set out some two hundred and forty thousand cabbage plants last year, and others plant largely; and besides this, several carloads of cabbages and other truck are sent daily during the season from Rochester into that section."—"Yes," said the Doctor, "instead of giving up the crop, because last year it did not pay, the Deacon had better stick to it. His low, rich, mucky land, if drained, is just the place to raise good cabbages. And if planted in rows three feet apart each way, it is little work to set out ten acres of cabbages. As they can be cultivated each way, the labor of keeping the crop clear, is no greater than for corn and potatoes. The outside leaves of the cabbages, which are left to be fed out to cows and hogs on the farm, are worth all that the crop costs. What you sell is clear profit."—"A common difficulty," said I, "in setting out cabbages during the dry, hot weather in July, is to get the land sufficiently loose, moist, and mellow. When pressed for time, it is not necessary to have all the land in the best possible condition. I have frequently found it desirable to confine the work of preparation to the row where cabbages are to be set out. Of course, the whole land should be plowed and harrowed, and if lumpy, rolled and harrowed again, until it is in fair condition. Mark out the rows, three feet apart, and run a narrow cultivator along the row where the plants are to be set."—"What do you mean by a narrow cultivator?" asked the Doctor.—"I mean a common one-horse cultivator, from which you remove all but three teeth, and set the cultivator so narrow, or close, that the teeth will not cut a strip more than eight or ten inches wide. Put the cultivator down deep, and if necessary, go two or three times in a row. If the land is dry, you cannot work it too much. The cost of running the cultivator is nothing compared to the advantages. Any one who has tried to set out plants in a dry, hard, lumpy soil, will be willing to try any plan that seems likely to lessen the labor of making the holes, and keeping the dry lumps from running into the hole before you can get in the plant. We adopt the same method in setting out celery plants."—"But is not a plow better than a cultivator?"—"No; not for this purpose. A plow leaves the ground hard underneath. Our object is, to make the soil loose, mellow, and moist. You can run a plow along the mark in the row when the celery is to be planted; but it will be found exceedingly beneficial to run a cultivator along the furrow, and burst up the hard soil below, and mix it thoroughly with more or less of the soil thrown out by the plow. I do not know that I make myself understood. The average farm man has very crude ideas in regard to the necessity and advantage of working the soil thoroughly in a dry season. The *American Agriculturist* has, again and again, pointed out the advantage of "firming" the soil—of pressing the dry earth firm around small seeds and around the roots of transplanted plants. This is very important. I am inclined to think, however, that the true plan of attaining the object, paradoxical as it may at first sight appear, is to make the soil as loose, and fine, and mellow as possible. Fine, loose soil is in fact more compact than hard, lumpy soil. A fine-toothed harrow will make a soil firmer than a roller."—"That is so," said the Doctor. "I think one of the most useful implements you have on the farm, is what your men call the 'rolling harrow.' I do not know what the proper name is. It consists of four wooden rollers, about six inches in diameter, fastened in a wooden frame, and on these rollers are thin circular blades of iron or steel, projecting two or three inches from the wood. The blades are two inches apart, and are so arranged upon the successive rollers, that the ground is cut in lines half an inch apart. After it has passed over the ground once or twice, you would think it had been smoothed off by a fine-toothed steel rake in the hands of a skillful gardener."—"The Doctor does not exaggerate its merits. And I have just been trying it, cautiously, in a new role. I drill in my turnips, onions, carrots, parsnips, cabbages, and celery on the flat, in rows wide enough apart to admit the use of a horse hoe between them. By the use of this roller harrow before sowing, the ground is made very smooth, fine, and firm, on the surface—so firm that a few

scattered, small, seedling weeds can hardly push through the hard crust. Perhaps you may doubt this, but it is a fact. The seeds sown thickly in the row, have, combined, strength enough to push through. But when we run the horse hoe through, the first time, this hard crust breaks up in thin flakes, and unless we use a tooth that pulls the soil away from the rows, there is danger of smothering some of the small plants. To obviate the difficulty, we usually hoe by hand a narrow strip on each side of the row, as soon as the plants appear, and afterwards use the horse hoe or cultivator. What I am now doing, is this. As soon as the rows can be distinguished, so that a horse can be driven between them, we run this roller harrow over the land, taking three rows at a time. I was a little nervous about it, and durst venture on only six rows on the first trial. But my fears were groundless. Possibly a few plants may have been killed, but there are plenty left, and it certainly breaks the crust and leaves the surface in fine condition. In fact, it looks exactly as though we had been over it with a steel rake."—"You know," said the Doctor, "that gardeners often go over the land with a steel rake to kill small weeds among onions, etc., and I suppose your idea is to do the same thing in a quicker way."—"That is precisely what I am aiming at. I never had courage enough to use a steel rake in this way with sufficient energy to do much good. But this revolving rake accomplishes the object without pulling up or smothering the growing crop. I will not say that it kills many of the weeds, but at any rate it breaks the crust and mellows the surface soil. I believe if our agricultural implement manufacturers would look into this subject, they could give us a tool that would be of great use, not only to the gardener, but to the farmer. We ought to have some kind of a roller harrow, of a form that could be attached to our horse hoes or cultivators that we use between the rows of corn, potatoes, beans, mangels, turnips, etc. Our cultivators are too coarse, and leave the soil that is at all clayey, too rough and cloddy. A roller harrow, fastened behind the cultivator, would slice up the lumps and leave the soil fine and mellow, and less exposed to our hot sun and dry atmosphere. It would conserve the moisture in the soil underneath. In other words, this fine powdered soil on the surface between the rows of the crop would make the best of mulches."

Building up a Hay-Stack.

The great point to be secured in stacking hay is, to keep the center the highest. If this is done, water can not penetrate into the stack, but will find its way to the outside under the most unfavorable circumstances. If on the other hand, the center is hollow, the water must drain into the center, and so ruin the stack. An excellent way to build a stack is to set a tall sapling firmly in the ground, with a foundation of rails around it; then begin at the center, and place the hay about the pole, gradually spreading, until the edge of the base is reached. Continue building up the stack, the highest in the center around the pole, the builder standing in the center so as to tread the hay firmly there. As the stack settles, the outside sinks more than the center, and helps to make the stack better. The top of the stack is finished by fastening a covering of hay to the pole, with hay bands wound firmly around it. A stack so made will not leak, and even clover hay may be safely stacked in this manner, because the water must make its way to the outside by the force of gravity, and escape there by dropping to the ground clear of the stack.

FEEDING COB-MEAL.—Professor Sheldon, of the Mo. Agr'l College, has added to our stock of knowledge in regard to the feeding of meal made from ground corn ears. It is true that corn cobs contain some nutritive matter, if the meal can be digested. It is also true that matter otherwise indigestible, may often be made digestible by the right kind of preparation. Fine grinding, and mixing it with the more nutritious meal of the grain, may make the cob-meal useful, and those who feed meal of the entire ear, should have it ground as fine as possible.

Bee Notes for July.

L. C. ROOT, MOHAWK, N. Y.

One of the most important questions for the present month, is how to properly care for surplus honey. Both box and extracted honey should be kept in a cool, dry, well-ventilated room. In packing away box honey in such a room, care should be taken to sort out all boxes that contain any cells with pollen stored in them, as it is in such combs that the moth larvæ will work and injure them. Extracted honey should be kept in open vessels. Many advocate using a room so located that it may be kept very warm for curing honey. If the room is dry, and so arranged as to admit of a free circulation of air, I much prefer it should be cool. I find that both box and extracted honey cure equally well, and retain their flavor much better.

REMOVING SURPLUS HONEY.—If it is desired to have box honey of the whitest and most attractive appearance, it should be removed from the hive as soon as all the cells are capped over. Those who produce honey for their own use only, and care less for the looks and more to avoid the extra trouble required, will find that if the honey is kept on the hives until later in the season, it will be well cured, and they will also learn that while it will not be so white, it will receive an extra coating of wax over the cappings, which will render it less liable to be affected by moisture when kept for use later in the season. Besides, it is a fact, that unless it is kept under most unfavorable circumstances, such honey will retain its flavor much better when held for some time, than that which is removed from the hive as soon as capped over.

QUESTION.—I am asked to give my opinion as to whether the sting of a honey bee can be the direct cause of a person's death. There is good proof that under certain conditions of the human system a single sting may cause death. While this is undoubtedly true, it is also beyond question that vast numbers of people may be stung an indefinite number of times without receiving serious injury. While I advocate using every precaution to avoid unnecessary stings, I am convinced there is much needless suffering through fear, and the ill effect of the sting is often thereby much increased.

INTRODUCING QUEENS.—In introducing a queen, a weak or small colony is preferable to a large one. Have no accompanying bees in the cage—the queen should be alone. Young bees will accept a queen more readily than will old ones. No mailing cage that transmits queens safely is suitable for an introducing cage: in fact, a cage in which bees have been shipped is certain to have an objectionable odor. A new, clean cage made of fine wire cloth should be used. It should be not less than six inches long, and an inch and one-half across, so as to give the queen plenty of freedom, and should be placed between combs of brood. If no honey presses against the side of the cage where the queen can feed herself, food should be placed in the cage. Noon is the best time of the day in which to release the queen. When bees are storing honey rapidly they will accept a queen more readily. A young queen is more readily accepted than an old one. Black bees accept a strange queen the most readily of any variety of bees. When the bees are walking about unconcernedly upon the cage, caressing the queen with their antennæ, and offering her food, it is usually safe to release her; if they are clinging to the cage like so many burs, wait until they are better natured.

The Peach Borer and the Remedy.

WM. CLIFT.

The peach borer (*Ægeria exitiosa*), is among the worst enemies of the peach tree, and has much more to do with the decline of peach culture than is generally supposed. In some localities it is found to be impossible to raise peaches at all. The most of the trees are destroyed the first year after planting, and the balance die the second year. Unusually the planter is not acquainted with the habits of the insect; does nothing to check its ravages, and concludes that it is useless to plant peach trees. A knowledge of the habits of the insect will afford hints as to the methods of prevention. We are told that "the eggs from which these borers are hatched, are deposited in the course of the summer upon the trunk of the tree near the root; the borers penetrate the bark, and devour the inner bark and sap-wood. The seat of their operations is known by the castings and gum, which issue from the holes in the tree. When these borers are nearly one year old, they make their cocoons, under the bark either of the trunk or of the root, or in the earth and gum contiguous to the base of the tree. Soon after they are transformed to chrysalids, and finally come forth in the winged state, and lay the eggs of another generation of borers. The last transformation takes place from June to October, most frequently, however, during the month of July, in the State of Massachusetts. Here, although there are several broods produced by a succession of hatches, there is but one rotation of metamorphoses consummated within a year. Hence, borers of all sizes will be found in the trees at all seasons of the year, although it seems to be necessary that all of them, whether more or less advanced, should pass through one winter before they appear in the winged state. Under its last form, the insect is a slender, dark-blue, four-winged moth, having a slight resemblance to a wasp, or ichneumon fly, to which it is sometimes likened."

Many have seen the insect, doubtless, without knowing its name or character. The time to check its depredations, however, is not in the winged state, but at the time and the place when and where the eggs are deposited. The favorite place of deposit is just at the base of the trunk, where the wounds made will have the protection of the earth. The deposit of eggs is indicated by the flow of gum, and this may be found around the root of almost any neglected peach tree, at any season when the ground is not frozen. This is the point where remedies must be applied to be effectual. The oozing of the gum on the limbs is generally slight, and is under easy observation, and can quickly be remedied with a sharp-pointed knife. To get down and dig away the earth, and rout the enemy with knife and wire, tests the backbone, as well as the faith and patience of the fruit grower. After the worms are dug out, a popular remedy is the application of a plaster of wet clay to the wound, and a covering of the trunk with a strip of sheathing paper, eight or ten inches wide, extending an inch or two below the surface of the soil, tied in place, and further secured by a coating of plaster. This, no doubt, would be effectual, but it involves a little expense, and a good deal of labor. I tried an experiment last spring, and an examination just made shows very satisfactory results, with much less labor. In the spring of 1882, I planted a dozen seedling peach trees of the Spanish variety. I lost several of them the first season, but nine of them survived, and last spring were dug around at the surface of the ground, cleaned, and the small basin made was filled with unleached wood ashes. When examined last October, they were nearly all free from gum, and but few worms were found, in places not covered with the ashes. Eight budded peach trees from the nursery were planted last spring, and mulched with straw, but not protected by ashes; these were all badly eaten, and more or less worms were found and destroyed. The wounds and collar, of course, were covered with ashes. This remedy is easily applied, and seems to be effectual.

The Necessity of Clean Culture.

Last season was exceedingly dry in the Southern States, and the cotton crop was deficient. In passing through the cotton fields, one might see the plants only a few inches high, but yet bearing bolls. These, of course, were only partly developed, although some fine specimens could be gathered in places, which carried several well filled bolls, upon stalks which were not more than a foot high. But when the fields were examined, they were found to be clean and free from weeds. Where grass had overrun the rows, the stand was worthless, and the crop not worth picking. It is always thus with every crop. It is not alone in the cotton fields that this can be seen. It is the same in the tobacco plantations, and the corn fields, and in the northern corn and potato fields as well. To have a full yield, the soil must be kept free from weeds. There is but one way to do this, and that is to begin early. Weeds are easily killed when they are first seen, and more easily still, before they are seen at

A RAKE FOR WEEDING.

all. A heavy rake is better than a hoe for this work, and will do more in ten minutes, than can be done with a hoe in an hour. An implement made as in the engraving, will do this work of weeding in an excellent manner. This is made of a heavy rake head, with a handle attached as shown, and furnished with a number of teeth placed about an inch apart. The teeth may be made of forty-penny nails, or one-quarter inch round iron, the weight of which will bury them in the soil without any effort. It is much more easy to work with this implement, than with a lighter rake. The beds may be cleaned close to the plants, and it should be used as soon as the weeds begin to appear, and as often as they show themselves until the end of the season. Such work is profitable, because with clean culture one acre will produce as much as two will without it. This applies to every crop.

Ruta-Bagas, or Swedish Turnips.

We have sown ruta-bagas as late as the fourth of July and had a fair crop, though it is better for the main crop to sow earlier. However, for a crop to market for table use, the first week in July is early enough. Some farmers select a piece of low, rich, muddy soil, that is not dry enough for early crops. We have seen some fine crops of ruta-bagas and other varieties of turnips grown on such soils. Ruta-bagas should always be sown in drills rather than broadcast. Sometimes they are drilled in rows fifteen inches apart, and kept clean by hand-hoeing or the use of a hand cultivator. But for field culture it is better to sow in drills two feet or two and a half feet apart, and cultivate with a horse hoe.

The great enemy of the crop is the jumping turnip beetle that eats off the young plants before they get into the rough leaf. The remedy is thick sowing and the use of superphosphates, to push forward the plants. Dusting the plants with lime, while the dew is on early in the morning, is often recommended. Sometimes it seems to do good, and sometimes it fails to save the plants. In our experience, thick seeding, say three or four pounds of seed per acre, is the surer remedy. We think another practical method is to work among the plants as much as possible. Cultivating between the rows disturbs the beetles, and they jump from plant to plant and thus do not confine themselves to one until it is entirely destroyed. After the plants get into the rough leaf they are comparatively safe, and the thinning out process should commence. This is done by striking the hoe boldly across the row, and cutting out all the plants except one—six to twelve inches spart, as deemed best. If the crop is intended for market, excessively large roots are not desired, and it is not necessary to thin the plants so wide apart. Ten inches is a good average distance for the main crop. Keep the crop clear by the use of the cultivator between the rows. It is necessary to go over the piece twice with the hand hoes, once to single out the plants, and again in two weeks to kill weeds, and to remove any plants that may have escaped the first hoeing. After this nothing more is needed, unless it is to run the cultivator once more between the rows. There are few farm crops which pay better than ruta-bagas. They command a good price in market, but if they cannot be sold they can be fed to great advantage to horses and sheep.

Parasitic Disease in Lambs.

Lambs are subject to a parasitic disease which is always fatal to them if neglected. It is known among shepherds by the suggestive names of "pining" and "paper-skin," and by veterinarians as "anæmia," or want of blood. It is caused by a thread-worm, which exists in the lungs and air passages, and interferes so much with the breathing as to prevent the due aëration of the blood, and the necessary supply of this vital fluid. The consequence is, that the red globules of the blood are lacking; the blood is pale, and the growth of the animal is arrested. The skin appears white and thin, like paper, and the young creatures are weak, and pine away gradually for want of adequate nutrition, and finally die. A similar parasite produces the disease in calves, known as "husk," or "hoose," and another causes "gapes" in young chickens. It affects lambs that graze in pastures with old sheep; calves are troubled which are fed with the cow, or upon hay from fields where older animals are pastured; and young chicks which run upon ground fouled by the hens, are apt to get the gapes. To prevent it, this chief cause is to be avoided, while to cure it, the usual and effective remedy is to give small, repeated doses of turpentine. The following mixture is recommended: To one ounce of molasses, or linseed oil, add one-fourth of an ounce of spirits of turpentine; shake well together, and give one teaspoonful to each lamb, early in the morning. For a calf, one tablespoonful should be given, an hour before feeding in the morning; and one drop may be given to a small chicken. The remedy should be repeated for a week or ten days, as it is necessary that a sufficient quantity of the turpentine should be given to secure its escape through the lungs of the animal by exhalation.

An Improved Wire Gate.

H. H. Hastings sends us the following description of an improved wire farm gate, in which the wires can be made tight at pleasure. Instead of attaching the wires to both of the end standards of the gate, a sliding standard is put on near one end,

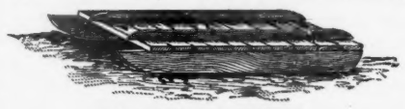
IMPROVED WIRE GATE.

to which the wires are fastened. This is secured to the main standard by two long screw bolts, leaving a space between the two of five or six inches. The wires are tightened by turning up the nuts.

AN EXCELLENT FODDER PLANT.—The Massachusetts Agricultural Experiment Station has made an analysis of the white lupin, which is a very common and highly valued fodder plant in Europe. The plant is found to contain rather more nutritive matter than lucern (the so-called alfalfa), and is consequently more nutritious than red clover. It was tested when in blossom. It is an easy crop to grow, and succeeds upon light, dry, sandy soil. It is therefore exceedingly useful, not only as fodder, but as a green manuring crop for plowing in, to improve the soil. The lupin is largely grown in Europe.

Tool-Sled and Marker.

When one can, as the saying is, kill two birds with one stone, it is economy to do it. The attention of inventors is always turned towards devices which will make a tool serve more than one purpose, and the farmer should always be on the lookout for such contrivances, which save labor and storage space. A very convenient implement of this kind is the combined stone boat, tool sled, and marker. It is a sled, with a pair of runners three feet apart in the clear, which will serve to mark out the lines for planting corn, and with a second pair on the reverse side, twenty-seven inches apart, for marking rows for roots. By having spare pieces which can be put on temporarily with bolts, marks can be made for beans or other crops of this kind with any desired spaces between the rows. The runners are made of two-by-six stuff, which gives hight enough to pass over rough ground, and the floor is made of



TOOL-SLED AND MARKER.

two-inch plank. The runners on the top serve to keep the load in place. By removing the top-runners and reversing the sled, it will make a smoothing-plank for breaking clods on rough soil. When it is used for moving manure, it is easily upset by turning the team off sharply to one side, which overturns the load. Thus the contrivance may be made to serve several purposes, and it has made an excellent bench for scraping hogs upon, when it has been raised to a convenient hight. It has served a good purpose too, in drawing muck out from a swamp, and in collecting fruit in an orchard.

Hints about Winter Pigs.

The farmer who is this year making his first experiment in raising winter pigs, would do well to bear in mind, that in his zeal to make his brood sow pens snug and cosy, he is every whit as likely to overrun the mark, as the reverse. His anxiety to have everything as warm and comfortable as possible, will be very apt to lead him to close all means of ventilation, to exclude even a proper amount of light, or to give the little strangers no chance whatever for exercise. Then he will probably be astonished to find that his pigs, though seemingly healthy and thriving, suddenly begin to die off. It is not from being lain upon, evidently; it surely can not be from starvation; and cold is out of the question. There is no apparent cause to his mind for this startling mortality; and yet the explanation is simple enough, viz., vitiated atmosphere, and lack of exercise. Farm animals are not so widely different from human beings in their physical requirements, as many are inclined to think. "It's only for the hogs," is an argument that appeals only to the unenlightened. Make your pens as warm and tight as you please, but, for pork and profit's sake, give them decent ventilation and plenty of light. Give your young pigs a chance to run about, and stretch themselves, too. If your pens are in a piggery, let there be a small opening into another and larger pen, where the pigs can scamper around, and pick up a little extra feed, thrown in from time to time; or if they are in your barn, make an opening through which your pigs can get out to the barn floor, and root about among the grass seeds. In either case, it is a good plan to have small, hinged doors, opening outward (to the south, if possible), which you can open on sunny days, and let your pigs out for a run in the open. Keep them in close confinement, and failure is certain. You can no more expect to raise winter pigs successfully, in a small, stuffy pen, than you can hope to grow Jacqueminot roses in your cellar.

L. C. M.

Water in Park Scenery—The Bronx Park.

Water so enhances the attractiveness of natural scenery, that landscape architects, in designing a park, provide for its introduction in some form, and often at a very heavy expense. Water as a feature in park scenery is employed in its quiet form, as in a placid lake, or tranquil, slow-flowing stream, but it adds still more variety to the scene if in motion, as in a torrent or a cascade. In the several tracts selected for new parks for New York City, water is generally a conspicuous feature, either upon the parks themselves, or in the views to be had from them. Among these well watered tracts, the most notable is the Bronx Park. Instead of a park with a river running its whole length, it is not an exaggeration to describe it as a river with a park upon either bank. The Bronx is a varied and picturesque stream, which now forms the eastern boundary of the present territory of the city of New York, and in its course varies from fifty to three hundred feet in width. The land selected is a strip, from half a mile to three-fourths of a mile wide, upon each side of the Bronx. The tract comprises six hundred and fifty-three acres, and includes portions of the Lorillard, Lydig, and other noted and venerable estates. These estates having been preserved intact since Revolutionary times, present scenes of wild beauty which cannot be found elsewhere nearer than the Adirondacks, and the tract requires but little at the hand of art to convert it into a park of rare and romantic beauty. But the chief feature of the park is the river from which it properly takes its name. The river presents a great variety in its course; at one point it rushes through a narrow gorge, with rocky walls nearly a hundred feet in hight, and again it widens into broad reaches, and appears like a series of tranquil lakes, with high and wooded banks. In its course the river reaches the Lydig dam, which causes it to spread out into a beautiful lake, at least a mile in length. The river here falls over the dam, in a broad cascade, which even now adds greatly to the beauty of the landscape. This waterfall can, by proper treatment—by the judicious introduction of rocks and trees—be made to appear like a natural cascade of exquisite beauty. The Bronx Park is full of promise of future attractiveness; indeed it needs little, besides the construction of roads and paths, to open up to the public a park designed by nature for its enjoyment. The engraving gives a view of the Lydig dam and the cascade as they appeared to one of our editors in his drives about the country. Those who are so fortunate as to have on their private grounds a running stream, have at hand the means of embellishing their estates in the most attractive manner. Even a very small run, a mere rill, if it be a permanent or "living" stream, can be made, by proper treatment, to form lakelets, rocky rapids, and cascades, as well as gardens of aquatic plants in charming variety.

OUR NEW BREATHING SPOTS.—A PARK CASCADE.

Engraved for the American Agriculturist.

Cattle Pictures. — The time was when agricultural papers were full of cattle pictures drawn by the rule and square. Jersey breeders first departed from those pictures and employed photographs. Very few other breeders have dared to "follow suit." To this day it takes nearly all the art of a pretty good artist to make a Shorthorn with a large enough body, small enough head and legs, and square enough all over to suit the breeder. The same is true of Hereford breeders, and to a less extent of breeders of Holland cattle and Ayrshires. We amused ourselves a few days ago by cutting out pictures of Shorthorn, Hereford and Angus cattle, from the advertising pages of a paper, and fitting them with the heads of swine cut from the same paper. The fact that the cattles' bodies matched the swines' heads is of course evidence enough they were out of drawing. The body of a bull or a cow is not shaped like that of a pig; the legs are not so small and short in proportion, and the belly line is never so level. It is true, that many breeders of these cattle will think the caricature a good likeness, if the valued points and style of the breed are followed, however exaggerated.

Summer Seeding to Grass.

The most successful seeding to grass may be done in July and August, after the grain crops are taken off. The present season has been a bad one for the seed sown last fall. The hard winter destroyed the timothy, and the late spring has interfered greatly with the seeding of the clover. As a rule, it may be said that summer seeding is more successful than fall and spring seeding, but the ground must be thoroughly well prepared. The whole secret lies in this preparation. The following plan has been found excellent. The stubble is well plowed, not more than four inches deep, and immediately harrowed in a thorough manner. There are several new implements which do this work in the best manner, pulverizing the soil, leveling the surface and smoothing it, so as to get the land in the most perfect condition for the seed. After all this has been done, and the furrow marks obliterated, the seed is sown and the surface immediately rolled. If this is done in July, nothing more is required. If it is left later, it will be desirable to sow turnip seed, at the rate of one pound per acre, with the grass seed. This affords protection for the young grass and clover in the fall and winter. We have found it a good plan to leave the turnips on the ground and not gather them. They will be killed by the frost, and the leaves falling down, furnish protection to the grass during the winter, and in the early spring, when so much damage is usually done by the alternate thaws and frosts. The grass will usually furnish one cutting the same season, but it should not be pastured, as the surface is not yet firm enough, nor the plants sufficiently well rooted to stand such a tax.

Among the Farmers of the Southwest.

The great Southern World's Fair has come to a close. By the limitation clause in the organic act, which appropriated a million and a half of dollars from the United States Treasury, and placed it in the hands of the officers of the Cotton Planters' Association and of the city of New Orleans, the exposition was permitted to continue "not later than the thirty-first day of May, 1885." An effort is being made to raise a fund for what is termed the continuation of the exposition next year, and thus they hope to be able to utilize the buildings another season. But really the great exposition is a thing of the past. As an exhibition of the most important and interesting resources and products of this country and of Mexico, it was most wonderful, and surpassed the most sanguine expectations. In the matter of attendance it was lamentably a failure. It seemed as if people took interest in it very much in proportion to the distance they were away—for Louisiana people were very slow in finding out that there was anything there to interest them; and so with the common people of other Southern States near by. Arkansas and Florida were, however, exceptional, for a very considerable number of their citizens were in attendance. The people of the Western States were favored by low railway fares, while those of the East were largely prevented from coming by the cost of the trip, the reduction of fares being very small. The great West was therefore well represented; Texas sent thousands of her citizens; and of course there was a constant though comparatively meagre attendance from all the rest of the Union. On uneventful days no more people were upon the grounds then we are accustomed to see at first class county fairs—say five to eight thousand. Still, it is fair to suppose that altogether half a million southern people have, by means of this exhibition, been brought into pretty close relations with half as many northern and western people, and that as a result of this mutual interest in the same things, and friendly intercourse in the railway carriage, at table, and at the exposition, friendships have been formed between those of different sections, avenues of trade have been opened up, and southern people have been led to take pride in, and feel a personal interest and title in, say Massachusetts and Ohio, just as Massachusetts and Ohio people have always felt in regard to every square foot of our common country.

The exposition was of course largely agricultural. It commenced with a magnificent show of fat cattle, sheep, and swine, closely followed by the noblest and most complete display of draft horses which has ever been made in this country. For a time these exhibits were contemporaneous; then the cattle left, and the horses remained awhile longer. It was a great misfortune to the exposition that the prizes awarded to these classes of live stock were not paid. They amounted to some forty thousand dollars, if I am rightly informed, and the exhibitors were many of them put to severe straits for lack of the money. The news that the prizes had not been paid, and that the management was hundreds of thousands of dollars in debt, deterred exhibitors in other classes, so that the displays which followed, namely, of breeding cattle, sheep, swine, poultry, and dogs, were not nearly so fine as they would otherwise have been—in fact, were decidedly mediocre. Still, characteristic and valuable animals were shown in most of the classes for which prizes were offered. They were chiefly from the Western States—Ohio, Indiana, Illinois, Missouri, Wisconsin, and Kansas. Kentucky and Tennessee held their own, and there were a number of excellent herds in the Atlantic and Gulf States well represented. Still, the show was nothing like what it should have been.

The exhibition of agricultural implements was really imposing. Aisle after aisle crossing, or nearly crossing, that immense "main building," was crowded with implements of tillage, seeders, cultivators, harvesters, threshers, and cleaners, hay forks and loaders, hay cutters, steamers, etc., etc. Then, near by, were root cutters, and grain mills for making flour by the old process and by the new. There were manure spreaders, seed drills, and broadcast sowers, plaster and grass seed sowers, and every other implement or class of implements useful to the farmer, or to those who place the products of the farm in the markets of the world.

Then with and among these implements, which are those of the daily life-craft of the northern farmer, were others. I saw a group of farmers standing over a nondescript agricultural machine. It was largely of wood, with hopper and spout and arrangements for opening a drill and for delivering seed of some sort, and for covering it and rolling down the ground. Said one: "What in the name of common sense is that 'ar?" "That 'ar's a 'tater planter," said another. "You're out," said a third; "'tw'd take a small 'tater to go through that masheen."

"Say, Mister! what is that concern anyhow?"—"Cotton planter, d'ye say? Might ha' know'd it! Don't ye see, that's the feed. The seed kinder sticks together, ye know, so it takes a kind o' forced feed. That 'ar thing 'll work; 's a good un. These southern chaps ain't so slow a'rter all." "Yas, but what they want's more life. Not but what they's lively 'nuf ef you cross 'em, but somehow those on 'em that 'll git behind a good day's work, week in and week out, is skus."—That seemed to settle it, and the farmers moved on. They were quite as ready to give praise as blame, and glad to do the former every time.

Not far from the "Music Hall," where the Mexican band discoursed artistic music, national, patriotic airs—Dixie and Hail Columbia (which were always applauded to the echo, and often cheered with a "tiger" and sometimes with what we old soldiers remembered as the "rebel yell")—near by, I say, was a booth, a curious affair—a table in front, at one side a Confederate soldier (stuffed), behind him a black altar draped with the Confederate battle flag, and with "In Memoriam" in white letters upon it. At the right was another altar, draped with the stars and stripes, with *E Pluribus Unum* telling its story of a united country. The broken shackles and the horn of plenty were left out, but were present all the same. There is a newspaper, which is the organ of the ex-Confederate soldiers, which inculcates loyalty to the Union, and as not inconsistent with that, the memories of the past. Here was the subscription table.

My farmer friends had preceded me, and one of them took a squint at the ex-Confederate in effigy. The gray uniform and the gray blanket looked as if they had seen service. Then he stooped down and took another look. "See here, boy!" to his son, "ef thar ain't a Johnny, as nateral as life."—"My sakes, how many times I draw'd a bead on a feller like that—and dodged his shots too. That ar's a Johnny Reb, lookin' 'bout 's tho' we had him a prisoner—no arms, ye know—and didn't love us Yanks for a cent. Called us all Yanks, whether we come from Maine or Minnesoty."—"But they was men, you bet, and good uns. They was in a tight place, then, and now its 'Seven children, one leg and no pension,' like the feller we cum across over in Gretna."—"I'm a'goin' to subscribe for that 'ar paper. Will you take a subscription, ma'am?—Abijah Alling, 35th Michigan. Only a dollar? Tho't 'twas two. Never mind the change; give it to some old soldier—your side, you know."

Little 'Bijah looked on in wonder. Dollars seemed unusually plenty with the "old man," and it was not often that a tear was seen to glisten in his eye. He was thinking about something.

In the long annex, where the heavy machinery was placed after the great building of twenty-two acres in extent began to be crowded, were many things to interest farmers. Cotton gins, coffee hullers, sugar mills, hemp breaks, jute machines, and such things, and foremost among them was the great cotton compress, in which full-sized cotton bales were squeezed down to a foot in thickness, with much puffing but with as great apparent ease as one will take a soft sponge and squeeze it to one-fourth its bulk in his hand. Every farmer is or ought to be a road maker, and near by was a most efficient stone crusher, which will greatly reduce the expense of crushing stones for road-making all over the country where stones may be had. For large farms, small narrow-gauge railways were shown, which can be shifted here and there with little labor, and little locomotive engines which are adapted to run over as rough a track as would be likely to be found on any well ordered and moderately even farm. They are of some six to ten horse power, and are useful in handling logs, timber, etc., and on large sugar plantations.

The traction engines did not make so much of a display as they often do at our northern agricultural shows. I was surprised at the great ponderousness of the sugar machinery exhibited. It indicates that for the most profitable production of sugar from the cane the work must be done on a very large scale. W.

A Brush Harrow.

For the cultivation of various kinds of crops, one of the most useful implements is one that can be made on the farm; and if properly constructed it will last a lifetime. It is a smoothing and brush harrow. Several allusions have been made in the *American Agriculturist* to the use of this implement,

and we now give an engraving of it which will show its construction. It should be made out of rather heavy stuff, so that the weight, as it is dragged along, will be sufficient to break the lumps and even the soil. This harrow can be used with good effect to cover over newly planted seed, and in all cases where a disc or tooth harrow would be too heavy or wide-spread, a brush harrow, like that described, will be found to be a good substitute.

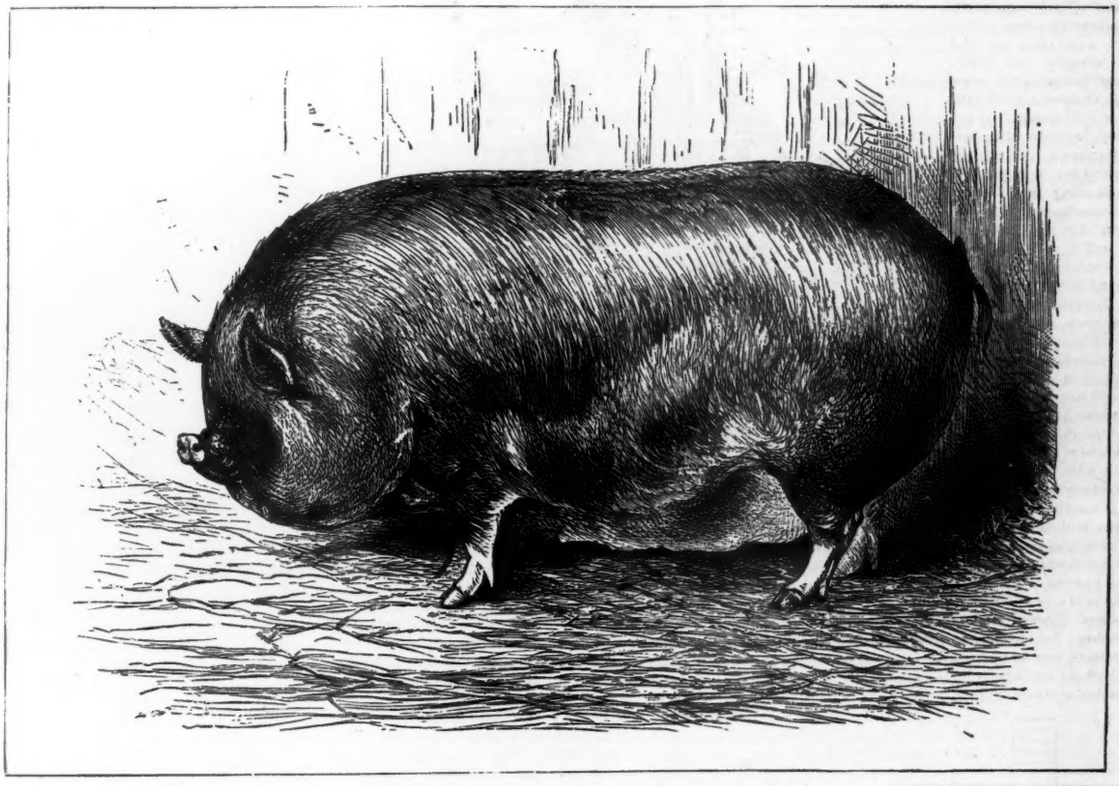
Emigration to the South.

There are no finer opportunities to be found in the whole country for farmers and mechanics of all kinds to secure pleasant and profitable homes than in the Southern States. A traveller passing through Virginia, North Carolina, and Georgia especially, will be surprised to find himself in a country which differs but little as regards the soil and its cultivation, from the best parts of Southeastern Pennsylvania or parts of Ohio and New York. The chief differences are the sparseness of homesteads, the absence of herds, and the presence of cotton fields. Improvements are apparent on every hand. The presence of new-comers is exhibited in new houses and barns, in the herds of beef cattle seen here and there, and in the broad, luxuriant fields of clover. But the improvement, as yet, is but a drop in the bucket, as compared with the room that remains for the profitable enterprise of farmers, fruit growers, dairymen, stock breeders, and sheep growers; together with all sorts of workers in wood, woollen manufacturers, tanners and other mechanics. One of the most charming regions, is the broad mountain country of the Blue Ridge, which runs from West Virginia down to the northern coast of Alabama. There is no more pleasant, healthful, and fertile locality in our broad land than this. It is the largest timber reserve now existing in the United States, covering twelve thousand square miles, of which seventy-five per cent consists of forests of the most valuable kinds of timber. The water is soft and pure, and abundant. The region has an average elevation of two thousand five hundred feet, and an evenly mild climate, so that cattle and sheep can feed out nearly the whole year. Grasses grow luxuriantly, and it is well adapted for dairying. Moreover, its varied scenery and salubrious climate render it a most desirable home.

Small Black Pigs.

The breeding of pigs has been conducted on a different system in this country, from that followed in England. There prizes are offered for small black, and small white breeds, large white, etc. Here we assume that the various breeds have some positive title to their names, based upon a long course of systematic breeding. Hence we offer prizes for Essex and Suffolk, and small Yorkshire, etc. We have long been familiar in this country with what were called here, Suffolk pigs. They were white, and much like the small Yorkshires, but not so short-faced. Then Suffolks were imported which were black, and resembled the familiar Essex pigs. It made confusion, and unsettled people's ideas. Since the small Yorkshire pig, white, has become fashionable, the white Suffolk has pretty much disappeared, and we seldom hear of animals exhibited as such either in this country or in England.

The true Suffolk is a black pig, and as such competes with the Essex and Dorset pigs, in the English shows. The fact is, English breeders breed, or rather have long been in the habit of breeding, to win at the shows, rather than for purity of blood, and that prepotency which close breeding creates. When American breeders take up a stock of pigs, they make purity of blood a strong point; so if one should import Essex, and another Suffolk, and another Dorset pigs, they would never think of crossing them, and after a few generations they would look quite dissimilar. In England, where the pigs would all compete in the same classes, if a breeder thought he could improve his Essex by Dorset blood, he would not hesitate to introduce it. One of the best breeders of small blacks in Suffolkshire, Eng., is A. J. Smith of Ipswich. A famous sow of his is shown in the accompanying engraving, as prepared for show. Such a sow would probably be ruined as a breeder. One pig of a litter is usually taken by English breeders for show purposes, and its prize winnings give value to the rest of the litter, and to the herd. We often see with the name of a pig, "Full sister to So-and-So," or "Full brother to So-and-So," naming the famous prize-winning pig. This is a practice which American breeders might follow. At the same time, buyers must be able to judge whether prize-winners have been forced and fattened, so as to hurt them for breeders, and perhaps buy brothers or sisters, rather than the prize winner. Mr. Smith regards early maturity, quality of flesh, and lightness of offal, as the cardinal points of the small black breed, and says that when properly managed, his sows often have fifteen or sixteen pigs at a litter, though ten to twelve is considered a fair number.



A FAMOUS SMALL BLACK SOW.

Engraved after Harrison Weir for the American Agriculturist.

Multiplication of Breeds of Poultry.

With our domestic animals, as with wine and cheese, the value of a breed depends in some measure upon its age. If breeders realized this, there would be less running after the so-called breeds which spring up every year or two. At the time the Leghorns were first brought to this country, they were a most unpromising lot, as we remember them, but they had elements of great value. White seemed to predominate, and the single-combed white fowls, were separated from the others and carefully bred. It was several years before a fixed breed was established, even with this excellent foundation. The foundation was good, because all the birds had the same general characteristics, which were peculiar and valuable, such as were possessed by none of the then existing favorite breeds. So when the Leghorns were introduced, with the uniform points of a fancier's fowl, they became at once great favorites and had deserved success. Then this excellent and unique breed, was made to carry forward with it, towards popularity, a number of allied breeds, all decidedly inferior to it—Browns, Blacks, Dominiques, etc.—and now it seems the breed, which properly affiliates with the Spanish, is to be Hamburgized and given a rose comb, and for aught we know blue legs. It is true that irregular rose combs occasionally appeared in the original stock; but they were regarded as abnormal. Now it is really absurd to introduce them for no merit, but simply to add another breed, or three or four breeds perhaps, to our already too long list of the Leghorn family. Some time ago a cross was made, which had Dominique plumage with large size, hardiness, small bone, yellow skin, quick growth, and the characteristics of a good "general purpose" fowl. This is the Plymouth Rock variety. It was not a breed, but a cross. However, after years of breeding to a fixed standard, it now is perhaps worthy of being received as an established breed. But it is still shaky. Left alone a few years, it would revert more or less; and in the best regulated families, black fowls are constantly putting in an appearance.

As if one such breed were not enough, another has been introduced, with no merit, that we are aware of, that the Plymouths have not. It is a speckled, mongrel-looking breed in the yard, though magnificent in the pictures; and yet the whole world of American poultry people, seem to be going daft over it, probably because it is so well advertised. It is pretty near a crime to admit these mongrel breeds, if they may be so called, to "the standard," and give them the approval of the united poultry breeders of this country. We have now breeds enough, unless somebody will get up a breed of fowls that will lay buff eggs, and will not sit. That would be both novel and useful. It would be better for poultry fanciers to try to improve the breeds we now have, and to learn by experimenting how to best use them in crosses.

No Need to Fear Competition.—The American farmer never need fear the competition of his foreign brethren. He is his own landlord, his own manager, his own tenant, and his own workman, to as large an extent as is practicable. Moreover, he is educated and intelligent, and therefore apt to learn and improve, and is industrious. No other farmer in the world enjoys all these advantages, and as every one of these helps to make him successful in his task, he can never suffer from the competition of those who have rents to pay to landlords, or who hire managers, and go themselves soft-handed, or who have to depend wholly upon hired labor, or who are, on the other hand, plunged in the deepest poverty and the densest ignorance.

A Queen Anne Cottage.

D. W. KING, ARCHITECT.

The design given in the accompanying engravings, is a good example of a village or country residence in the modern Queen Anne style. It is suitable for a family of means, and in building requires a lot of from fifty to seventy-five feet frontage. The cellar is six feet six inches in hight, and extends under every part of the building except the parlor. The area, foundation walls and chimneys, are of hard brick laid in cement mortar, and are supported upon footing courses of concrete. The tops of the chimneys and the foundation walls, three feet above the grade line, are laid in red mortar, cleaned with dilute acid, and oiled with two coats of the best linseed oil, colored with Venetian red. The bottom of the cellar is concreted three inches deep, with a mixture of best Rosendale cement and clean, coarse gravel, put down in board moulds well rammed in place, and the top properly leveled. The cellar doorway, window sills, and outside cellar steps, are of blue stone, properly set in the masonry. The first story is ten feet in hight, and contains a kitchen, dining-room, library, parlor, a large hall, and a sufficient number of closets and pantries.

The second story is nine feet six inches in hight, and contains five rooms, each with a closet, and a bath-room. The attic contains two bedrooms of good size, and a store-room. The flues in the chimneys are built separate and continuous to the top, with sheet-iron thimbles set in the brick-work where directed. The rooms in the attic, and all closets, are plastered in two coats; the cellar ceiling is plastered in one coat; all other side walls and ceilings are hard-finished on two coats of brown mortar and seasoned lath. The fire-places in the parlor and dining-room have open grates, and mantels to match the wood-work of these two rooms, and have tile facings, and hearths of selected patterns. The frame of the building is of sound, seasoned spruce, of the following dimensions: girders, six by eight inches; sills, four by eight inches; floor beams, two by ten inches; headers and trimmers, four by ten inches; attic ceiling beams, two by six inches; outside studding, three by four inches; door and window studding, four by four inches; inside studding, two by four inches; rafters, two by six inches; hips and valleys, three by eight inches; plates, four by six inches; veranda sills, four by six inches; veranda plates, four by six inches; veranda rafters, three by five inches; veranda beam, three by six inches; veranda ceiling beam, two by four inches; balcony posts, six by six inches; bridging timber, two by two inches. The studding and floor beams are placed sixteen inches from centers, all strongly bridged. The exterior of the building is sheathed with dry, tongued and grooved, milli-worked spruce, driven well together, and securely nailed to each stud, and covered with heavy brown manila paper. The side walls of the lower story are covered with dry, clear white pine, and beveled siding. The side walls of the second story are shingled with best quality white pine shingles, and the roofs are slated with good quality black slate, put on with galvanized iron nails. The main ridge is surmounted with a terra cotta cresting. The finial on the tower is of galvanized iron.

Fig. 1.—ELEVATION OF QUEEN ANNE COTTAGE.

The cellar window frames are of plank, with casement sash, which are glazed with single thick glass. All other windows have one and one-eighth inch jambs, and two inch rebated sills, with one and one-eighth inch blind hanging stiles, all of dry white pine, free from knots or blemishes. The sashes are one and one-half inch in thickness, glazed with double-thick French glass, and balanced with cast-iron weights, and brown hempen cord. Outside blinds to all windows except cellar and attic. The front door is veneered with oak, is two inches thick, with five raised panels, moulded both sides. The doors in the attic are one and one-quarter inch thick, with four plain panels. The outside cellar door is built of tongued and grooved white pine, securely nailed to strong cleats with wrought iron clinch nails. All other doors are of white pine, one and one-half inch thick, five paneled, and moulded both sides. The veranda and balcony posts, outside door and window casings, railings, steps, belt-courses, gutters, corner boards, etc., are of dry, sound white pine, with all the necessary mouldings. The floors of the first and second stories are of kiln-dried yellow pine; veranda and balcony floors are of white pine, laid in paint; attic floor of spruce, all well driven together, and blind-nailed to each bearing. The balcony floor is covered with sheet lead, and made water tight. The architraves and wainscoting in kitchen and pantry are of yellow pine. The architraves, skirting boards and panel backs in dining-room and hall, are of oak; in the library of redwood; in the parlor of whitewood, stained to imitate mahogany. The bath-room is fitted in white ash, finished with a coat of wood filler, and two coats of wood preservative, rubbed smooth with pumice stone and oil. All other inside wood-work of white pine, painted three coats as directed. The stairs to the cellar are built of plank in the usual way. Main stairs of oak, with turned newels and balusters, properly filled and polished. The pantry is fitted with shelves, and all closets with wardrobe hooks, as directed. Hard wood saddles are placed under all doors, and rubber-tipped door-stops are attached to the bases. The front dining-room, library and parlor doors, have bronze knobs, butts, roses, drops and escutcheons, and bronze-faced mortise locks. The attic doors have brown mineral knobs, and black japanned iron butts, roses, drops and escutcheons, and ordinary rim locks. All other doors have black porcelain knobs, roses, drops and escutcheons, black japanned iron butts, and brass-faced mortise locks. Bronze sash locks for the dining-room, hall and library. Bronzed iron sash locks for other windows. The flashings and linings of gutters, and all leaders are of I. C. charcoal tin, painted three coats, the first coat of metallic paint. A gong bell with all the required attachments, is placed in the front hall. All exterior tin work, iron and wood work, is painted three coats. Additional requirements are a furnace, with all the necessary pipes and registers, a kitchen range, with water-back, a forty-gallon copper boiler, a kitchen sink, copper bath tub and a water closet, with all the necessary cocks, pipes, traps, vent pipes and soil pipes, properly connected and brought into complete working order. These fixtures may be supplied with water directly from water works, or by means of a tank placed in the attic, which may be filled from the cistern by means of a force pump.

The small mouldings and narrow projections of the cornices, which are some of the characteristic features of the Queen Anne style, give a building an unsatisfactory appearance without a proper selection and combination of colors, and a proper use of materials. Great care should be exercised in deciding upon the colors to be used. Shades of warm brown are always pleasing, and suggest hospitality and comfort.

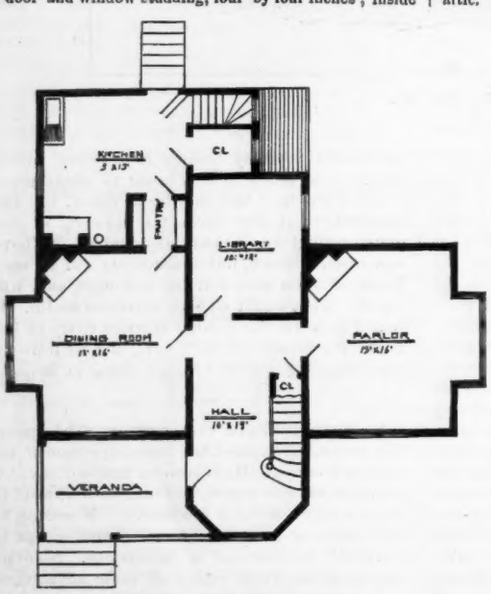


Fig. 2.—PLAN OF FIRST STORY.

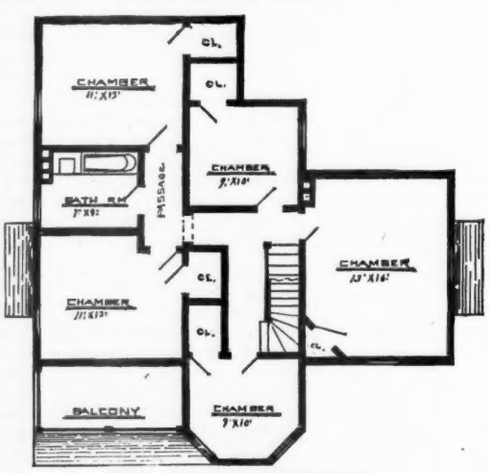


Fig. 3.—PLAN OF SECOND STORY.

Estimate of Cost.

180	cubic yards excavation, at 30 cents	$ 39.00
17,000	hard brick, laid, at $16	272.00
900	yards plastering, at 35 cents	315 00
60	yards two coat work, at 25 cents	15.00
44	running feet blue stone, at 32 cents	14.08
180	cubic feet concrete, laid, at 20 cents	36.00
14,000	square feet framing timber, at $20	280.00
6,000	square feet sheathing lumber, at $18	108.00
20	squares of slating, at $10	200.00
2,000	square feet white pine siding, at 35 cents	70.00
2,500	square feet yellow pine flooring, at 40 cents	100.00
1,200	square feet spruce flooring, at 2 cents	24.00
2,000	square feet W. P. finishing lumber, at 5 cents	100.00
600	square feet Y. P. finishing lumber, at 4 cents	24.00
800	square feet oak finishing lumber, at 10 cents	80.00
300	square feet redwood finishing lumber, at 5 cts.	15.00
1,000	square feet whitewood finishing lumber, at 4c.	40.00
400	square feet cherry finishing lumber, at 10 cts.	40.00
4	white pine turned balcony posts, at $5	20.00
40	running feet balcony and veranda railing, at $1	40.00
17	running feet lattice work, at 75 cents	12.75
34	running feet tile cresting, at $1	34.00
8	cellar windows complete, at $4	12.00
32	windows, fitted and hung complete, at $10	320.00
1	dormer window, hung complete, at $20	20.00
1	dormer window, hung complete, at $12	12.00
1	cellar door, hung complete, at $5	5.00
1	front door with trimmings, complete, at $20	20.00
12	inside doors with trimmings, complete, at $10	120.00
12	closet and attic doors, at $5	60.00
2	wood mantels and grates, set, at $50	100.00
Stairs complete		100.00

Extra hardware and nails	$ 100.00
Flashing, tinwork and leaders	75.00
Painting and glazing	200.00
Plumbing, range and heating	600.00
Carpenter work and labor not included above	900.00
Incidentals	174.17
Total	$4,697.00

OUR BASKET

Does it Pay to Plow Under Clover for Manure?—Yes, unless you can use it to better advantage for hay or pasture. See Harris's "Talks on Manures," where you will find this matter fully discussed.

Celery on Swamp Lands.—R. Downs asks us "if celery would do well on damp ground, such as reclaimed swamp." It is just the place for it, but you should not be discouraged if you do not raise a large crop the first year.

Transplanting the Box Elder.—W. T. C., Redfield, Dak. It will be safest to transplant this tree (also called the Ash-leaved Maple), in spring. Fall planting is only advisable in localities where there is a long, mild autumn after the fall of the leaves.

What Is the Hackberry?—M. T. L. Hackberry is a small or medium sized tree, closely related to, and much like the elm. It bears a sweet and edible fruit, as large as small cherries. Its botanical name is *Celtis occidentalis*. It is called sugarberry in some localities.

Fire-Proof Fence.—W. W. T., Lehi City, U. T. A wooden fence will always burn at the joints. If the rails or boards could be held to the posts two inches from them, so that fire could not be sustained, the fence would not burn. A coat of lime wash would help to make the fence fire-proof.

Home-Made Hay Press.—M. C. L., N. M. A description with illustrations of a home-made hay press, worked with ropes and levers, and which could be made without any iron, and put together with wooden pins if desired, was given in the *American Agriculturist* for June, 1885.

Welding Lightning Rods.—Directions are sometimes given for piecing lightning rods by welding. This mode is not at all necessary. The parts of the rods may be joined together with screw couplings, in the same way that gas-pipes are united, or in any other manner that will secure a good contact between the pieces.

Waterproof Boots.—R. G. N. writes us from Dakota: For rendering boots waterproof and pliable, I have never found anything equal to the fat from wild ducks, the teal duck furnishing a large supply compared to its size. Water will not penetrate leather that has been thoroughly saturated with this grease.

Wood Ashes vs. Coal Ashes.—J. Francis, Warren Co., Ohio. Unleached wood ashes contain about ten per cent of potash, and three per cent of phosphoric acid, with thirty or forty per cent of lime. Leached ashes lose all the potash but about one per cent, and half the phosphoric acid; the lime of course increases in proportion. Coal ashes are chiefly silica, magnesia and sulphuric acid, and contain only one pound of potash in one thousand pounds. They are thus of very little value as a fertilizer, while wood ashes are of considerable value. Use coal ashes on roads and paths.

Buggy Beans.—G. F. Marion, of Jackson Co., Ill., writes us: "We people down here in Egypt, are much troubled with buggy beans. Is there any way we can rid ourselves of this pest?" Probably not. As yet the bean weevil does not trouble us much in this section, but then we have thorns and thistles, and mildew, and early and late frosts, and floods and drouths, and many other things to try our faith and patience. Stop raising beans for a few years, except for eating green, and this will lessen the trouble. Let the good people in the north or west, or us poor farmers in New York State, raise the beans for you. We will take pay in corn, beef, pork, wheat, etc.

Cultivating Celery.—J. C. Wooton, Lenoir Co., N. C. Celery does well on a moist, cool soil. A drained black swamp is a good soil for celery, or any low ground that is inclined to be clayey, and that is adherent enough to be banked up at the proper season, when the crop is blanched. The plants are set out in rows four feet apart, and eight inches apart in the rows. As they grow, the earth is drawn up to them to keep the stalks together, and in the fall they are brought close together, and banked up on each side with soil up to the leaves, by which the stalks are blanched, and made tender and crisp.

Forage Crops.—A "Subscriber" asks us, "Would you sow Millet or Hungarian grass in place of corn?" These crops require less manure than corn, and the fodder is much more like ordinary hay. Still, it is hardly probable that any other fodder crop will yield more solid nutriment to the acre, than corn. Our subscriber probably refers to the so-called "Golden," or "German" Millet, which is larger, but very much like the Hungarian Millet. The plant called Pearl Millet is entirely different, and much more nearly resembles Indian corn in its manner of growth, and in the resulting fodder. It requires rich soil and manuring, but withstands the drouth well.

About Fowls.—S. H. O., Juniata Co., Pa. The Wyandotte breed has an excellent reputation for producing eggs, but it has not yet surpassed the Leghorns in this respect; it is far superior to the Leghorns, however, for table use. The Light Brahma and Plymouth Rock are considered the best breeds for producing early chicks for market. As a rule, salt should not be given at all freely to fowls. If they can get insects or worms, they need no salt, but when confined, a small quantity is useful. The old Shanghai fowls have disappeared; the Cochin is their nearest descendant. La Flèche is pronounced "la flash"; Wyandotte, "wyandot": Crève Cœur, "crave cur," The first and last are French names.

Seed Peas.—Mr. Henry H. Cook says he lives "away up in the northeast corner of Maine," and it has occurred to him that it would be a good place to raise peas for the New York seedsmen. "Peas do well," he says, "and are usually quite free from bugs. We have been largely engaged for ten years past in raising potatoes for starch, and the time has come when a different system of farming must be adopted." We have no doubt it would be a good plan to raise seed peas, and also seed oats. We have found great advantage in our own experience in getting seed oats from Maine. Probably there might also be considerable advantage in growing early varieties of sweet corn for seed.

Veterinary Surgeons.—It is gratifying to note the continued prosperity of the American Veterinary College. At its tenth annual commencement, over thirty young men took their diplomas. Among them was a citizen of Cuba, and one from Japan, who, by the way, received the first prize, the gold medal of the trustees. In looking over the list of graduates, we observe the entire absence of young men from the Southern States. In no part of the country are competent veterinary surgeons more needed than in the South, and no professional career can be more honorable and useful, or hold out stronger pecuniary inducements, than that for which young men are educated at the American Veterinary College.

Pond for Carp.—F. Schultze, Sauk Co., Wis. A carp pond must have a muddy bottom, and be supplied with aquatic plants, as water lilies, sedges, water cresses, etc., upon which the fish feed. Carp are vegetable feeders, and can not live in a pond, unless it is either naturally supplied with such food, or is planted. A spring running into the pond would be an advantage. An acre of water, six to eight feet deep in the center, if well supplied with suitable food plants, would support more than a thousand fish, but as carp increase very fast, the stock would have to be reduced very often after the pond was once stocked. A pond that can be drawn off by a gate, is desirable for taking out the fish, and when the dam is built, a gate should be made in it for this purpose.

Fodder Corn in Eastern Virginia.—J. D. Morey. No doubt the best corn to plant for fodder, is one of the largest varieties of sweet corn—Stowell's Evergreen and Mammoth Sweet, have both sweet and leafy stalks. They do not yield so heavy crops as western and southern corn, but the stalks are more thoroughly consumed by the cattle, and easier to cut up when cured, for feeding. The variety known in our markets as "Southern White," a large-kerneled, tall-growing variety, is generally used, because it is cheaper, and yields a heavier crop. Land for fodder corn ought to be well worked, and highly manured. No doubt stable manure, applied both broadcast and in the drill, with the addition of some active fertilizer in the drill, gives the best results; there should be a furrow turned over the manure, so that the seed will not come in contact with it.

Sheep in Florida.—Irving Keck, one of our subscribers in Polk Co., Florida, writes us: "I am not able to speak for the whole State, but I know sheep do well in Polk and Manatee Counties. In talks with sheep men, the lowest profit any have named is thirty per cent, and some say forty. I tried to buy a few, and three dollars per head, two-third ewes, was the least they would talk about. The sheep run without care until shearing time, when they are gathered up and sheared, and the lambs branded. Occasionally an old wild hog kills a lamb if she finds it before it has got on its feet and got straightened after being born. The ewes bear a lamb or more every eight months. The bucks run with the herds all the time. Sheep raisers are beginning to seek for better bucks, to improve their flocks, and I think you will yet hear from Florida sheep."

How Many Cabbage Plants for an Acre?—H. S. Reading, Hunterdon Co., N. J., asks us how many cabbage plants are required per acre? This depends on the distance apart—and the best distance depends, first, on the price and character of the soil, and second, on the varieties. If you have rich and high-priced land, and want to make the most of it, plant thicker. If you have cheap land and want to economize in labor, plant farther apart, and do nearly all the work with the cultivator. For large winter varieties on cheap land, three feet apart each way will be a good distance. This will take four thousand eight hundred and forty plants per acre. If you plant in rows three feet asunder, and eighteen inches apart in the row, there will be nine thousand six hundred and eighty plants per acre. If you have the rows two and one-half feet apart, and the plants two feet distant in the row, you will have eight thousand seven hundred and ten plants per acre. This is a fair distance for such varieties as Winningstadt, Early Summer, and, if the land is very rich, for Fottler's Drumhead and Premium Flat Dutch.

Profit Made on the Farm.—J. E. D., Carrollton, Ky. A man who is paid nine dollars weekly in a city, receives four hundred and sixty-eight dollars yearly. Out of this, if he pays eight dollars a month for rent, he will have left three hundred and seventy-two dollars, or one dollar per day. A man cannot live on this sum in a city. He may exist miserably, but that is all. Everything purchased in a city is very dear; there are necessary expenses to be met in getting about, to and from work, and these must come out of the money set apart for food. One in the country cannot realize the pinching and close economy that is practiced among the work people living in the cities. A good workman on a farm can get twenty-five dollars a month and his board, or thirty-five dollars, and keep himself, with house and fuel, and some garden, free. A farmer who will work skillfully, should make thirty dollars per acre, and can manage fifty acres with occasional help, in addition to making permanent improvements upon his land. The difference is all in favor of the farmer.

Value of Slaughterhouse Refuse.—A correspondent has a one hundred acre farm near a town of six thousand inhabitants. By the enforcement of the health law, the butchers are obliged to slaughter outside of the limits. They have asked the farmer to erect a convenient slaughterhouse, do the killing, and take for his pay all the offal, including heads, feet, liver, blood, etc. The number killed will average thirty-five head of cattle, twenty sheep, six hogs, and ten calves weekly, during the spring, summer, and fall seasons. The house will cost fifteen hundred dollars, and the expense will be three dollars per day. The question is, Will it pay the farmer? "Can I," he asks, "by a judicious system of feeding hogs with offal, blood, and a combination of starchy matter, make it pay on a farm, a part of which is devoted to market gardening, with more or less waste of vegetable matter? My idea is to divide the farm into convenient-sized fields, sow to clover, and pasture the hogs in alternate places. The farm is all cleared, with a portion of gravelly sand and muck soils. What is the best herd of hogs for the purpose?" It would not be a difficult matter from Lawes'and Gilbert's experiments on the composition of animals, to form an approximate estimate of the value of the offal from the cattle, sheep, hogs and calves slaughtered, and in a future number we may give the figures. At present we have only space to say that experience is a safe guide, and perhaps some of our readers, who have fed hogs on slaughterhouse refuse under similar circumstances, will favor us and our correspondent with their views, drawn from experience.

A Novel Milking-Stool.

A sketch of a convenient milking-stool, from which we have made an engraving, is sent us by a subscriber, with directions for making. Upon a hard-wood board, twelve inches wide, one inch thick, and thirty inches long, fasten at right angles a board to serve as a seat. This should be eight inches wide, and as long as the width of the back-board. Strengthen the seat with stout braces. Cut a narrow opening in the long board large enough to admit the fingers, by which to carry the stool, or hang it up when not in use.

Southern Tobacco Growing.

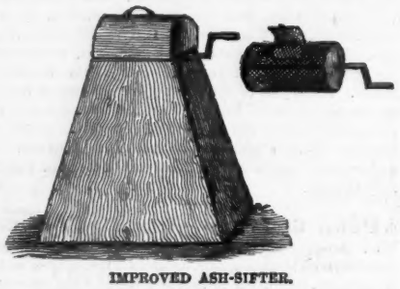
Much of the desolate appearance noticed by strangers in the southern country, is due to the exhaustion of the soil by continuous tobacco growing. A very large proportion of what was known as tobacco land, has been thus reduced to a condition of poverty, in which it has been "turned out" to grow up to old field pine or broom sedge. As every fault brings with it its own punishment, so this has done, not only in the loss of the use of the land for many years, and the cost of reclaiming it, but also in the injury which results from the adverse impression upon the minds of visitors from other states, who are seeking homes in the sunny and fertile south. This fault should be prevented in the future, and there is no need to stop growing tobacco either. Tobacco is the cash crop of the southern farmer, and every farmer requires a certain amount of money coming in, to meet expenses which must be paid in cash. But first of all, the food and fodder crops should be grown, then clover or cow peas should be grown for fodder for pigs, cattle and sheep. These may be sowed after two crops of tobacco have been taken from new land, and one tobacco crop may safely follow after either clover or cow-peas have been plowed in to enrich the soil.

Nitrogenous Food for Milch Cows—Peas.

Peas are very rich in albuminous food elements. They contain about double the quantity found in oats. We have heretofore repeatedly called attention to the fact that, in making up a milk ration, the albuminoids should form a prominent portion, if butter be an object. This view has been wonderfully sustained by the current statements concerning the amazing yield of butter of the Jersey cow, "Princess 2d," in whose ration pea-meal was so important a factor. Public faith was severely taxed to believe that a cow could yield twenty-five pounds of butter a week. When this was accepted as not only possible, but an accomplished fact, our faith was still further strained, to believe that thirty pounds a week could be, and without doubt had been attained; then that thirty-six and three-quarters pounds of butter had actually been churned and weighed from the milk of one cow, drawn within exactly one week. In attaining these greatest weights, a highly nitrogenous ration had been employed; and this contained a notable portion of pea-meal. As this is a rather unusual cow feed, the naturally distrustful among Jersey breeders, and dairy-folks, were willing to accept the thirty-six pounds, primarily, on the score of this remarkable feed. Besides, in these tests there was no secrecy: any one interested, who chose to be present, had full liberty to be, and was, or would have been, welcome. But our faith even in pea-meal, is now put to a severer test. The cow "Princess 2d," is said to have yielded forty-six and three-quarters pounds in a week, a jump and a straining of credence of exactly ten pounds. It may well be asked, "Is this thing possible?" and "Did pea-meal do it?" We can hardly doubt the statement. In fact, it is easier to believe that the cow yielded that amount of butter, than that the gentleman who certifies to the test on behalf of the Jersey Cattle Club, could have been deceived, or can be mistaken. Still, the test was essentially a private one. This was a grave mistake. It gives opportunity for carpers and doubters. In other cases, the butter which was obtained has been exhibited, given away, sold in the market, and analyzed, or at least examined, by competent chemists. This ought always to be done, and an analysis of the butter as taken from the various churnings, ought to be reported to the Jersey Cattle Club, or to the public. Not long ago parties were selling through the country, a white powder, which tasted like bicarbonate of soda, or borax, which was warranted to double the yield of butter, if put into the churn in small quantities. The venders used to show the good dairy women how to do it, and they sold many farm and dairy rights. The drug coagulated a portion of the caseine, which added greatly to the mass of the butter when it first came from the churn, but which gave trouble in the salting and second working. Now a good many plain people know about this and other tricks; hence when the public is asked to believe such a statement, about either the cow or her feed, it ought always to be well hedged about with evidence of the strongest possible character. Very few cows can digest food enough of any kind, to produce twenty-five pounds of butter in a week, and to do it, the cow must be gradually trained up to the test, as a horse is trained and prepared for an important race. No one need suppose that it is pea-meal alone, that will produce great results, although it helps to bring them about. In view of this fact, it seems remarkable that other highly nitrogenous articles of diet should not have been tried. For instance, fish, of which the Cape Cod cows are said to be very fond, or eggs, which horses often become annoyingly fond of, and for which, no doubt, cows would quickly learn to have an appetite. This idea that albuminous, or highly nitrogenous food has special value in butter production, is not new. It was promulgated definitely by Robert Dundas Thompson, of Glasgow, Scotland, as long ago as 1846. Since then it has obtained.

An Improved Ash-Sifter.

The greatest objection to ordinary ash-sifters arises from the dust which flies in clouds around the person using it. A subscriber has suggested a contrivance which obviates this trouble, and has sent us a sketch from which the accompanying engraving has been made. The sifter consists of a close wooden box, which holds in grooves at the top the axle of a cylindrical sieve constructed in the manner shown in the engraving. This, when



IMPROVED ASH-SIFTER.

in position, is covered by a shield of wood or tin, which effectually confines the dust. At the top is a handle by which to remove the shield. There should be a door at the bottom through which to remove the ashes, which should be done often.

No Profit in Old Animals.—There is a period in the life of an animal, when its food does no more than support its existence. An animal of this kind is a source of loss to its owner. Some breeding animals may be made profitable for their stock up to the utmost verge of their productive age, as some mares at twenty-six years, or some cows at thirteen or fifteen. But otherwise, when an animal passes its prime, it is no longer profitable to keep, and should be turned into money—which when well used is always productive—as soon as possible. Old cows, sheep and poultry, should be made fit for sale, and replaced with younger and better stock.

A Berry Picking Stand.

During the berry picking season, much time is lost in the field through the lack of a suitable box or stand for transferring the filled baskets to the packing house. The accompanying engraving illustrates a very convenient and simple stand for this purpose. It may be made to contain either

BERRY PICKING STAND.

nine, twelve, sixteen, or twenty baskets, as may be desired. The handle is made of a barrel hoop nailed firmly to the sides. Suitable legs are attached to the stand to raise it from the ground.

Millet or Hungarian Grass.

There are few farms where there is not more or less land that cannot be or is not occupied with the ordinary crops, such as corn, corn fodder, potatoes, oats, barley, wheat, peas, or beans. It is too late to plow early enough in the season for these crops, or it may be that the land was planted to corn, or potatoes, or beans, and the frost destroyed them. After the first of July, the only crops that can be sown to advantage are: winter wheat, or winter rye, for next year; and for a crop this year, turnips, and millet or Hungarian grass. There is not much difference between millet and Hungarian grass. Sow whichever is most convenient. Perhaps the Hungarian grass makes the better fodder. Any good land that can be brought into a fine, mellow condition, with moisture enough to germinate the seed, will produce millet or Hungarian grass. On dry upland it is not always easy, during dry, hot weather, to secure the desired tilth. It requires a free use of the harrow and roller, first one and then the other, to reduce the hard clods. A good roller is especially needed. You cannot roll dry land too much. On moist, mucky, or alluvial soil, it is an easy matter at this season to put in a crop of millet or Hungarian grass. If the land is not too rough, or too heavily covered with grass or weeds, a gang-plow that, with three horses, will turn over four or five acres a day, five or six inches deep, is as good as an ordinary plow and much more expeditious. Then harrow until the ground is smooth and mellow, and sow from three pecks to one bushel of seed per acre, broadcast, and go over it with a light harrow and finish with a roller, and the work is done. The earlier the seed can be sown after the first of July, the better; but a fair crop can be grown if not sown until the first of August.

For fodder or hay, cut before the seed gets out of the milk, and as much earlier as you like. If the crop is very heavy, and likely to lodge, cut as soon as the plants are in blossom. We have cut it with a mowing machine, and cured it as we do ordinary grass; and we sometimes cut it with a reaper that throws the crop into bunches. In the latter case, the horses do not trample the grass into the loose soil. The bunches are turned when necessary, and afterwards thrown in good-sized and compactly made cocks which will shed the rain. It can remain in these cocks for several days, or until there is a prospect of settled weather. The crop will well repay all the labor of sowing and curing it. In fact, few crops in proportion to the time and labor required will pay better. Horses, cows and sheep eat it greedily, either in the green, half-cured or cured state. It is a good crop to sow.

Birds of Paradise.

Feathers have always been favorite ornaments for ladies' "head-gear," and among these the feathers of the Birds of Paradise, have long been exceedingly desirable and costly. The scarcity of these birds, has confined their use to the wealthy. This genus of birds, known as *Paradisea*, was so named from the gorgeous beauty of its plumage, which greatly exceeds in brilliance and delicacy of coloring, that of any other birds. The species of which we give an engraving, is *Paradisea Papuana*, so named because it is found only in New Guinea and the islands of the Papuan group. It is called by the French *La petite Emerande*, or the Little Emerald. This genus is allied to the family of crows and starlings, which is an illustration of the fact that a great variety of dispositions and characters is to be found in all families; even in the highest there may be some members of poor character, or even of disrepute, and others of the very greatest excellence. This applies to the human family as well as to the lower animals. But this genus of birds exhibits the most wonderful variety, and a surprising development of plumage, which forms in the different species, fans, crests, tufts of feathers, long tails, and sweeping, flowing plumes, of most graceful form and of surpassingly exquisite coloring, which spring from the head, back, shoulders and rump. There are about twenty species of the birds of paradise, most of which are exceedingly rare in commerce, because of the inaccessibility of the islands which they inhabit, and the hostile and aggressive nature of the savage Papuan races. The first skins of these birds which were imported into Europe, were without the feet, and it was popularly supposed, that the birds being footless, never alighted; and for this reason, and also on account of their exceeding beauty, must belong to a region above the earth, a belief which is expressed in the name which was given to them. A few years ago, however, an enterprising English traveller succeeded in procuring some live birds, from which the engraving here given was made, and which afforded an opportunity of studying their habits. The food

BIRDS OF PARADISE—*Paradisea Papuana.*

Reproduced for the American Agriculturist.

of these birds consists of insects and various grains. They are very restless, much like their commoner relatives, and utter sounds similar to the "caws" of the ordinary crows. Like all other birds of handsome plumage, they delight in exhibiting their finery, and for this purpose they pose upon their perches in the most effective manner. The plumes are partly of an orange color, shading into pure white; a strip of rich, reddish brown, merging into nearly black, runs through the orange color for one-quarter of the length of the plume, and two black, wiry shafts are attached to the wings. The general color of the bird is light-brown; the upper part of the back is yellow, as are also the wing feathers. The mature males alone are thus brilliantly attired, and as with most birds, the females are more modestly adorned. The hens are entirely white on the under part, and of a coffee brown on the back. The young males are colored much like the females, and do not acquire their full plumage until they have arrived at a state of maturity, which is at about four years of age.

Converting Sheep Skins into Glove Leather.

The manufacture of gloves is becoming an important American industry, the chief seat of which is at Gloversville and adjacent towns in the State of New York. Kid gloves and kid shoes are commonly supposed to be made of skins of young goats, but in these times of inventive ingenuity, "kid" leather is made of sheep skins as well as of

Fig. 1.—UNHAIRING KNIFE.

young goat skins. The process will be of interest, because it is one that can be applied to the dressing of any small skins with or without the fur or wool. We give here, however, the whole process, from which those who desire to dress skins with the fur on, may select that part which suits their purpose. The skins, if dry, are first soaked in water, until softened thoroughly in preparation for unhairing. The mixture employed for removing the hair, consists (for two hundred skins) of five pounds of red arsenic and thirty quarts of lime, slaked with warm water, and reduced to the consistence of common paint. When the mixture is cool, it is brushed over the flesh side; then the skins are doubled and laid hair side to hair side in a pile for five hours,

Fig. 2.—FLESHING KNIFE.

or until the hair "slips" easily. The hair is then scraped off with the unhairing knife (fig. 1), after which the skins are placed in a bath of weak lime water for two weeks, and are moved about in the liquor every second day. They are then rinsed in pure water, and scraped on the flesh side with the fleshing knife (fig. 2), upon a beam, and then returned to the lime liquor. They are then washed in warm water and pounded, or milled with a revolving barred wheel, or trodden until they are freed from the lime and made quite soft. The next operation is scraping the skins on the grain

Fig. 3.—THE "SLATE."

side with a slate (fig. 3), to remove all impurities, and washing in pure water. They are then put in a bath made of bran and rye flour, or fine meal, and water of a temperature of seventy degrees. This mixture, for two hundred skins, is as follows: forty pounds of bran, fifteen pounds of flour, and water enough to float the skins. The skins are put into the bath, and are well stirred up. In a few hours fermentation begins, and the skins rise to the surface. They are stirred again to get rid of the gas, when they sink. This is repeated

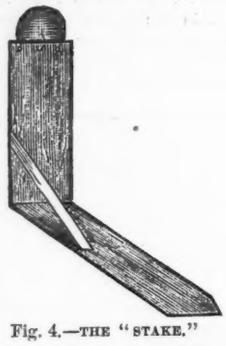


Fig. 4.—THE "STAKE."

about four times, when the skins are taken out and drained. They are then ready for the tawing process, which is different from tanning. In tanning, a chemical change occurs, the tannin of the liquor combining with the gelatine of the skins, and forming an insoluble substance which is called leather. Glove skin is spoiled by water, as is well-known by those who wear the gloves; but shoe leather is "warranted to stand wet," or should be. The tawing mixture consists of (for two hundred skins) twelve pounds ot alum and eight pounds of salt, for glove kid (for shoe kid twenty-four pounds of alum and seven pounds of salt), dissolved in warm water; and to this are added two hundred eggs, and twenty pounds of wheat flour (for shoe kid one hundred eggs and sixteen pounds of flour are used). The whole is mixed into a thin paste. The skins are well worked or trampled in this paste for four hours, and are then left for twelve hours. They are then folded lengthwise, flesh side out, quite smoothly, and afterwards dried in the open air, or in an airy place under cover. The last operation consists of dampening the skins with water, and stretching them over a bar, or "stake" (fig. 4), pulling them backwards and forwards until they are quite soft, and then thoroughly drying them. They are then laid away in a pile to "set" for two months for glove leather, and for shoe leather four weeks, after which they are ready for dyeing. For dressing skins with the wool or fur on the unhairing operation is simply omitted.

Care of Hen Manure.

Few people know what and how much they lose, when they neglect their hen manure. Really, nothing is more wasteful and unthrifty, than to allow poultry of any kind, to roost at night in trees, on fences, or anywhere except over a compost heap, or above a tight board floor. Birds are so constituted that water, of which most of them drink a great deal, passes off through the skin and breath to a very large extent, and not through the kidneys, as is the case with the mammalia. The manure of fowls, therefore, contains their urine, as a solid excrement. It may be recognized by its white color, and constitutes the most valuable portion of their droppings. The flooring or boards under the hen-roost, should be smooth and close, with cleats around the space upon which the manure will fall. Dry earth, sand even, mixed with land plaster, or sprinkled over after spreading with a solution of sulphate of iron (copperas), should be evenly spread or scattered upon this floor daily, and where there are many hens, the whole should be cleaned off and renewed twice a week. The proportion of earth to be added, should be two-thirds, or three quarters of the entire bulk. It should be placed in a heap under cover, on a cement, or brick, or clay floor, where it may be shoveled over and mixed with sweepings of the house, feathers, broken eggs, dead chickens or rats, or other small animals, and such refuse generally, including old hens' nests. It must be kept moist, and in case there is any odor, either of decomposition or ammonia, this must be suppressed by sprinkling with copperas water, scattering plaster over the heap, or by the addition of more earth. The best earth for all such purposes, is good, rich, loamy soil. It should be prepared in hot, dry days, by sifting upon a floor of boards in the sun, raking it over until thoroughly dry, and barrelling for use. Hen manure, and the wastes of the poultry house preserved in this way, will in the course of a few months become nearly homogeneous, and a fine fertilizer for field and garden use. A fresh heap should be started after the first has reached a convenient size, and it is always well to have a stick of ash or oak, an inch, or an inch and a half in diameter, run into the heap and going nearly to the bottom, in order to judge of the heat caused by the fermentation, which is constantly going on. This will be known by the heat of the stick when drawn out. When the manure gets too hot, it must be shoveled over and repacked solidly.

A Summer Milk-House.

CYRIL MARR, CALIFORNIA.

The engravings represent a cheap, cool milk-house for use in warm climates like those of

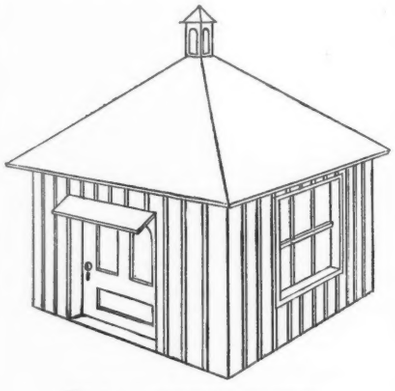


Fig. 1.—A SUMMER MILK-HOUSE.

Southern California and Arizona. Though costing more than the underground cellar, we much prefer it. To have it above ground is an advantage, for the room is then readily kept dry and sweet as well as cool. The house is twelve feet square, outside measure, and ten by ten inside, with walls eight feet high. This allows two independent walls, leaving between them a space of about a foot, which is filled with sawdust; and there is a layer of sawdust overhead. The foundation,

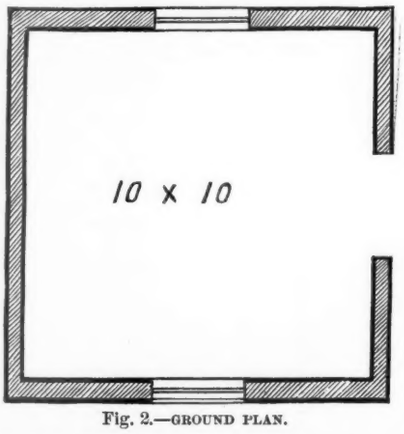


Fig. 2.—GROUND PLAN.

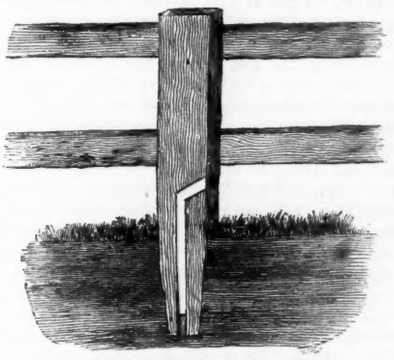
should be higher than the surrounding ground. The material required for such a house, will be:—

8 pieces, 2 by 12 inches, 12 feet long, sills and girders.
8 pieces, 2 by 4 inches, 12 feet long, plates and cross-ties.
4 pieces, 2 by 4 inches, 10 feet long, plates for inner wall.
24 pieces, 1 by 12 inches, 16 feet long, outer wall.
20 pieces, 1 by 12 inches, 16 feet long, inner wall.
6 pieces, 2 by 4 inches, 20 feet long, rafters and bridging.
18 pieces, 1 by 4 inches, 18 feet long, sheathing.
12 pieces, 1 by 12 inches, 12 feet long, floor of loft.
8 pieces, 1 by 6 inches, 10 feet long, water joint.
24 pieces, ½ by 3 inches, 16 feet long, outside battens.
12 pieces, ½ by 3 inches, 12 feet long, battens for loft.
50 feet, surfaced lumber; 2,000 shingles; 1 door; 2 windows; 1 pair hinges; 1 lock; nails, screws, etc.; sawdust.

Application of Wood Preservatives.

A. S. FULLER.

There are various solutions which, if injected into the pores of wood, will prevent decay, at least for a very long time. The great difficulty in the way of using these preservative solutions is the time required and cost of impregnating the wood with them. Many different methods have been employed to accomplish this, but all have proved to be so expensive, that very few of the number have come into common use. The various processes of painting, coating, and carbonizing the exterior of wood to prevent decay have been known from very early times, but however useful these methods, they merely postpone the period of decay for a few years. To impregnate wood in all parts with preservative materials in order to prevent decay, appears to be rather a modern discovery, for the first of such inventions that we find recorded is that of a Frenchman named Fagol, who experimented as early as 1740 with solutions of alum, sulphate of iron, and other substances in which the wood was immersed until the liquid had penetrated it to a greater or less depth. A few years later (1756), Haller recommended the use of vegetable oils for the purpose. In 1767 Jackson proposed to employ a solution of sea-salt, sulphate of iron and magnesia, alum, lime, and potash. In 1779 Pallas proposed to mineralize wood by immersion, first in a solution of copperas, and afterwards in milk of lime. Steeping wood in a solution of sulphate of copper (blue vitriol), and then coating with coal tar was first recommended by Dr. Holes, but Dr. Fordyce substituted sulphate of iron with most excellent results. Sir Humphrey Davy suggested a solution of corrosive sublimate, and this was subsequently employed by Kyan, who patented his process in England in 1832, and whose name has since been connected with what are termed the "Kyanizing processes." Kyan used air-tight tanks, in which the timber was placed; the air was then exhausted, and the solution forced in under pressure. Even this part of the invention was not Kyan's own, as Sir Samuel Bentham in 1784 had patented a method of exhausting air from the pores and then forcing in chemical agents. But a large number of patents have since been obtained for the same or similar processes, the object in each case being to introduce a solution that will prevent the decay of the wood. Nearly or quite all of the earlier patents are now no longer in force, and the very best and most effective solutions can now be used without fear of infringing upon any recent patent. But as already stated, the difficulty is not in knowing what solutions to employ as a wood preservative, but how to best use them. To force a solution into and through a stick of green, or even dry timber, and in a few hours time, is certainly out of the question in the absence of costly apparatus. It is true that the ordinary farmer may use any one of several of the inexpensive wood-preserving solutions and gain something by the operation, but to apply them hastily is seldom satisfactory. Immersing the lower ends of fence posts in hot coal tar will preserve the outside for years, but it very frequently happens that in using small trees from four to eight inches in diameter the heart wood is the first to decay. This often occurs with chestnut posts that are set before they are thoroughly seasoned. To prevent this decay at the center, as well as of all that part of the post placed below ground, by the use of wood preserving solutions, my friend and neighbor, J. J. Suckert, Ph. D., suggests a system which strikes me as being not only novel, but exceedingly valuable as well. It is to have a hole in the center of the post, from the bottom upward, to a point that shall be above the ground when the post is in position. Then bore another hole in the side of the post with a slight inclination downward, making an opening in the center hole, as shown in the engraving. A wooden plug, two or three inches long, should be driven snugly into the hole at the bottom of the post, in order to prevent the escape of any liquid that may be used in the operation. Now when the posts are set in an upright position, a preservative solution may be introduced into the hole in the side and the center one filled with it, after which a cork or plug of some kind should be inserted in the side hole to prevent evaporation, as well as to keep out dust and insects. The solutions thus introduced will gradually be absorbed by the surrounding wood, until all parts along the entire length of the central cavity must become completely saturated. When the solutions used have been taken up by the surrounding wood, it will only be necessary to withdraw the cork, or plug, and



SECTIONAL VIEW OF BORED POST.

apply more, if it is thought desirable. A common watering pot with a slender spout will be a handy vessel to use in distributing the solutions.

Petroleum, creosote, corrosive sublimate, or any other of the well-known wood preservatives may be used in this way. Telegraph posts might be prepared in the same way, and if the central reservoir were kept filled with petroleum, they would last a hundred years or more. Where a large number of posts or poles are to be prepared, it would be cheaper to have the holes bored by steam or horse power than by hand. With very open and porous wood it is quite probable that a hole bored in the side of the post and above the ground, and deep enough to hold a half pint or more of creosote or some similar solution, would answer, but I think a central cavity reaching to the bottom would be best. Will the readers of the *American Agriculturist* who give this plan a trial, report the result?

Another Use for Old Fruit Cans.

Probably no other waste articles have given so much trouble in disposing of them, as fruit cans. They are known to be valuable, but to what good use to turn them, has been a problem which has disturbed many minds. They are hard to get rid of, and hard to use, and so there have been many devices thought of for the purpose of utilizing them. We have seen them used as a substitute for shingles, by having been unsoldered in the fire and flattened out, and they have certainly made an excellent roof for out-houses, pig-pens and other small buildings. A coat of mineral paint makes them last for many years. A reader of the *American Agriculturist*, suggests another plan for a few of them, which is to open them as shown in the engrav-

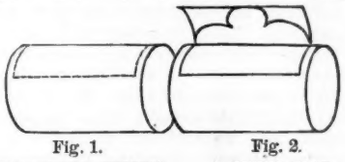


Fig. 1. OUTLINE FOR CUTTING.

Fig. 2. SHOWING FLAP.

ing, and make a flap of the loose tin by which the cans may be hung upon nails in the barn or workshop, for holding small things, as nails, screws, etc., etc. To this we would add that a few of them thus prepared, might be hung around the chicken yards for feed and water troughs, and would be excellent for this purpose, because the fowls could not put their feet in the food, or foul the water. This device is really one of the most promising of all that have hitherto been proposed to utilize these tantalizing things. No doubt they could be turned to account in several ways in the house, and if neatly covered with gold or silver paper, would be ornamental as well as useful. Smooth the edges of the tin, in order to avoid cutting the hands.

Breeds and Families.

In the breeding of live stock, everybody realizes the subdivision of races into breeds. Among cattle we have Shorthorns, Devons, Ayrshires, Jerseys, Dutch, etc., and it is impossible to establish definite limits to their multiplication. Among dogs we have pointers, setters, mastiffs, etc., in great numbers, and so among all the races of quadrupeds, birds, and even fishes, which come under the influence of intelligent breeders, breeds are multiplied. These breeds occasionally break up into sub-breeds, as setter dogs into English, Irish, Gordon, etc., and when carefully bred, they always break up into families. These are essentially short-lived from the nature of things. A family may possess strong peculiarities, great pre-potency, and the individuals may bear to each other strong resemblances, but in the course of years, continued close breeding within the family, will weaken the constitution, or lessen the profit to the keeper in one way or another, so that he is actually forced to take outside crosses, to maintain the character of the family. As an example, the famous family of Duchess Shorthorns, was first maintained intact by the Oxford cross, which finally became so blended with the Duchesses, that other crosses were forced upon breeders, each one doing its share to dilute the blood and destroy the identity of the family. The highest value of families is for crossing and grading. Among the Jerseys as now bred, we see this strikingly shown. The great producers are all recent crosses of great butter families. These crosses between families serve in this way to intensify the characteristics of the breed. The blood of different families does not always unite well to produce the sought-for qualities. When this is so, the families are said not to "nick" with each other. Yet they may, and probably will nick well, crossed with others. Thus the blood of the famous English bull "Rioter," when it has been crossed with certain other families, has produced great butter-making cows. With "Alphea" blood it produced "Eurotas," "Bomba," and "Torfrida;" with the blood of "Victor Hugo," such cows as "Mary Ann of St. Lambert," and her sisters, cousins and aunts. There is an element of uncertainty in this question of nicking, and every careful breeder studies the relations of families, and the character of individuals, to determine what strains of blood go, or are likely to go well together. Horse breeders, especially breeders of running, and of trotting horses, are very careful about this. So we see tabulated statements of winners among horses, and of butter yielders among Jerseys, and of milk producers among Holsteins or Friesians, classified under their sires.

The Buckwheat Crop.

Buckwheat can be made a profitable crop, if proper care is given to it. This grain is worth at least seventy-five cents a bushel for feeding, if it is properly fed. It is best ground with corn, as fine as possible, and may be fed with cut hay or straw moistened with water. The seed may be sown early in July. We have found thick seeding the best. At least one bushel per acre should be used. It pays to prepare the ground as well for this crop as for any other, but it is especially useful for the purpose of breaking up an old meadow, and preparing it for reseeding. The sod will be well rotted, and the soil mellowed and made ready for a fall grain crop, if this is desired, to be followed by the grass seed the next summer. No other crop, except peas, so well mellows the ground as buckwheat, and this is precisely the effect required in reseeding land. Besides this useful purpose, buckwheat is valuable for its grain. It will easily produce thirty or forty bushels per acre if well managed, and a bushel of it is worth two bushels of oats of the light sort usually grown, which is largely husk. The crop, too, is put in at times and harvested at times convenient for the farmer.

How to Keep Mangel Wurzels.

Mr. T. W. Harvey, of Otoe Co., Neb., writes us: "The Mammoth Long Red Mangel Wurzel does better than the Yellow Globe varieties on our rich, porous, sandy loam soil. But I should be glad if you could tell me how to keep the roots through the winter. I lose half my roots before they are fed—sometimes by heat, sometimes by frost. How can I keep them from freezing and still give them air?"—On our own farm we have in years past experienced the same difficulty. But we have discovered a cheap and effective remedy. It is simply to put plenty of dry, sandy soil among the roots. This prevents heating. If the roots are kept in pits in the field, it is an easy matter to shovel in plenty of soil. Our own plan is to pit the roots in the field where they grow. We select a dry, sandy knoll, near the center of the field, pulling up six or eight rows of mangels, and throwing them on each side on to the growing crop.

We aim to make our pits about four feet wide and from a foot to eighteen inches deep. It is necessary to have perfect drainage. If this is secured, the pit may be made deeper, and the deeper it is the more it will hold, and the less labor it will be to cover it. In gathering the mangels, our own plan is to use three two-horse teams and stone-boats, and a one-horse cart. We should use more carts if we had them. The stone-boats being flat on the ground are easily loaded, but are not so economical of horse-flesh as the cart. We top the mangels at the pit. The cart dumps them on the side of the pit. The stone-boats are kept busy. One is being loaded, one going back and forth, and one is at the pit all the time. The days are short and time is pressing, especially if there is danger of frost, and we try to have force enough to push the work rapidly. An extra man or active boy helping the stone-boat, provided the rest keep up, will double the speed of the whole gang. You should be present yourself and lend a helping hand, first here and then there, as necessary. The weakest link determines the strength of the whole chain, and in a job of this kind there is always a weak spot; a little help, however, will keep things moving with spirit and without loss of time.

We top off the leaves as close as we can without cutting the mangel. The roots are not removed. If any manure is attached to them shake it off or cut off the roots. Clean dirt will not hurt. At the bottom of the pit or until the mangels are level with the surface, it is not necessary to take any pains in placing them or to mix soil with them. But afterwards the mangels should be "corded," or placed straight in layers, on the outside. Then throw on lots of fine soil, the drier and finer, and the more of it, the better. The soil on the sides of the pit that you have excavated will answer a good purpose. Judging from our own experience, if you leave the men to do this work it will not be half done. It takes the average farm man several years to understand the good effect of this dry earth in checking decomposition and keeping the mangels fresh. "How much earth?" The more the better. But at any rate, put in enough to fill all the interstices between the mangels. And if you have any doubt as to how much that is, give the mangels the benefit of the doubt, and throw on a dozen extra shovelfuls. "Making chimneys to carry off the heat and steam?" Not necessary. "Building in sections?" No special advantage. Make the pit as long as you like and as large as convenient, say three or four feet above the surface, gradually drawing in the heap until it is not over a foot or fifteen inches wide on top.

Straw is cheap in Nebraska. As soon as the heap is finished, draw away the mangel leaves and spread them on a grass field for the sheep or hogs, or cattle. If allowed to wilt a few days they will be less likely to scour the stock. When the ground around the heap is clear, put on a layer of straw, a foot thick, on the sides and top of the mangels, and start a plow to throw the earth up towards the pit, turning gee. Plow not less than six or eight furrows wide, and when this is done, start again near the heap and repeat the process three or four times. The more you plow, and the wider and deeper, the better. At the same time let the man throw up the soil upon the straw on the heap, until all the straw is completely covered. This will require a layer of ground about six inches deep, less or more, according to the skill with which the work is done. The straw must all be covered, and the dirt patted firm and smooth with the back of the spade until it will shed rain like the roof of a house. When this work is done, plow around the heap again, four or six feet wide, and do not forget it. If this is neglected, you may get caught by a frost and the soil become as hard as cast-iron. But if you plow around the heap several times, throwing up the soil towards the heap each time, you will leave a mellow mass of soil eighteen inches or two feet deep and five or six feet wide, that will stand a few days of almost zero weather without crusting more than an inch or so on the surface. The soil below will be as mellow as a sand heap. "But will not the mangels in the heap freeze if we have such cold weather while they are slightly covered?" Yes, if left in this condition long enough. But they will stand a night of the coldest weather without injury, and in the morning you can give them another covering of straw a foot thick, with a good layer of soil on top sufficient to entirely cover the straw. We do most of the work with the plow. There will be only a slight crust of frozen earth on the soil around the heap which was previously plowed as described above. The plow will easily break through it, and turn up a quantity of loose earth which can be thrown on top of the straw. The frozen lumps of soil can also be put on the heap and covered with loose earth.

If the work is properly done, you can listen to the savagest blizzard with a feeling, that no frost can reach your mangels. There is no danger of the mangels heating in the pit. The earth mixed with the roots will stop fermentation. The straw will absorb the moisture, and on top of the straw you have a layer of frozen earth, which will keep the mangels beneath the straw cool. Then, as a means of keeping out the cold, you have, first, a foot of straw, second, a layer of earth, third, another foot of straw, and fourth, another layer of earth. As is well known, there is no better non-conductor of heat than "dead air"—that is, an air-tight space surrounding the place or substance to be kept from freezing, or heating. And the layer of straw between the two layers of soil acts as dead-air, and will keep out the frost more effectively than two or three feet of solid earth. "Do you never have roots frozen in winter?" Yes. Last winter, on the very top of our mangel pits the first layer of roots were frozen and spoiled. This was due to the lack of straw on the apex of the heap. As the soil is thrown up on the heap, it has a tendency to pull down the straw, and unless you take special pains, the top of the heap will be left almost bare of straw. The remedy is easy. As you approach the top, when throwing on the soil, put a good bundle of straw all along the top of the pit, and cover it with soil. Do this when putting on the straw the first time and also the second time, and the pit will be safe. These details may give the impression of a good deal of work. As a matter of fact, there is comparatively little labor involved. The plan is the result of many years of experience, and we can recommend it with entire confidence. On our own farm, we do not feed many roots during the winter, and we let the greater portion of the mangels stay in the pits until spring. The few that are wanted for milch cows during the winter, are stored in the cellar, and when these are exhausted, get a few loads at a time from the pits. JOSEPH HARRIS.

THE PREVALENCE OF WEEDS.—In passing through a rich bottom in a southern corn field last fall, we saw the ground covered with a tall growth of "Beggar Ticks" (*Bidens frondosa*), as high as a tall man's head. The seeds were ripe, and on emerging, after passing through the field, the clothing was covered with the seeds from head to foot. Millions and millions of seeds (or properly fruits), were thus scattered over that field, to make work for future years. Even clover fields in other places, and grain stubbles and fence rows were equally thick with this and other weeds, which had ripened their seeds. To prevent this by cutting down the weeds before the seeds were ripe, would have spared, by one hour's work, days and weeks of future labor. Everywhere this lesson as to weeds may be learned.

Purification of Drinking Water.

EDWIN J. HOWE, M. D.

The average healthy adult man takes into his system four and a half pounds of water daily, and with it too often a dangerous quantity of foreign matter and disease-producing germs. In very many homes during the summer months, water that otherwise would nauseate the drinker, is made cold by ice, and then is hastily swallowed, the coldness masking its offensiveness. Unfortunately for the health of the consumer, the addition of ice does not render the impurities in water innocuous, but often adds to it its own contribution of disease-germs. Those who have studied the subject are aware that impure drinking water is the cause of many of the most common diseases. No subject then is of greater importance to the public than how to purify our drinking water. Water, if drawn through lead and tin pipes, often becomes contaminated with these metals to a dangerous extent. Where water remains in a lead pipe for twenty-four hours, and is then drawn off and drank, there is always danger of lead poisoning. It is always safer to let the water run for several minutes before using any for drinking purposes. Boiling the water destroys some germs, but does not remove impurities in solution. Analyses of water from city wells have frequently shown it to be so impure as to be utterly unfit for drinking purposes, and dangerous to health. The use of rain water caught in cisterns, with suitable precautions, will obviate most dangers from the present supplies of many cities, but unfortunately, few persons can take these "suitable precautions." A clean roof to collect the rain, clean pipes to transport, and a clean, well ventilated cistern to receive it, are essential. Water stored in a close cistern soon becomes unfit for use. Many waters that appear clear are full of impurities, and dangerous to health. Dr. Ezra Hunt says: "There are many waters used for drinking, which, if kept a few days in a long glass tube, half full and corked, will, on opening, emit much odor from the change in the suspended or dissolved ingredients they contain." The large majority of people in cities must depend for water on the public supply, hence it is of the utmost importance to the public health that the purest water attainable be secured; this, unfortunately, is often very impure. The only safe-guard to the consumer is in giving his personal attention to the filtration of the water used in his household. Water slowly percolated through crushed vegetable charcoal will escape from it not only cleansed of particles held in suspension, but also of organic and other matter. The cheapness of charcoal is such that it is obtainable by all classes, and when soiled, a fresh quantity can be substituted at trifling cost. The most effective filtration is obtained by placing crushed charcoal in an earthen vessel, so arranged as to compel the slow passage of the water through it, as all efforts at rapid filtration have proved inefficient. Only wooden spigots should be used in drawing off the water. A reservoir for the filtered water with a separate ice-chamber, will permit the water to be sufficiently chilled and keep all ice impurities out. Such a contrivance requires but very little room, is easily cleaned, the coal renewed, and is efficient in freeing water from impurities.

[The fact that ice may preserve disease germs was painfully proved by the terrible epidemic of typhoid fever which overtook the village of Plymouth in Pennsylvania in the spring. The dejections of a typhoid patient were thrown out upon the snow, near a brook, last winter. The snow preserved the germs, and melted; the brook carried them to a storage lake or reservoir, whence the water was distributed to the village. Families were swept away, and hundreds of people died.—EDS.]

Flowers which Should Not be Planted.

That there are some highly ornamental small trees or shrubs which make themselves altogether too much at home in cultivated grounds, was shown last month. There are also some otherwise desirable herbaceous plants, which when once established, soon take possession of the soil; and if one tries to eradicate them, he finds they have come to stay. Several years ago, when there was a great craze for plants with variegated foliage, one of our leading florists imported as a high-priced novelty, *Ægopodium Podagraria variegata*. He was so much pleased with its handsomely cut and distinctly variegated leaves, that he sent us a small plant,

CALYSTEGIA PUBESCENS.

thinking that we might wish to illustrate it. He was propagating the plant as rapidly as possible, expecting it would make a sensation. Had it been generally planted it would have made a sensation, but not in the manner he expected. The plain form of the plant is one of the most troublesome weeds known to European cultivators. In the way of rapid spreading and being difficult to eradicate, it can give the Canada thistle odds, and beat it. As is sometimes the case, the variegated appeared to be more vigorous than the normal form. As soon as the florist was informed that his beautiful plant with the long name was the dreaded "Goutweed," to his credit be it said, he destroyed his whole stock, and his anticipations of a sensation at the same time. Cultivators of such plants had a narrow escape. Among the plants used for their subtropical effect when grown in isolated clumps upon the lawn and elsewhere, is one introduced from China about twenty years ago, *Bocconia cordata*. It is a member of the Poppy family, a perennial which throws up numerous stems from four to eight feet high. The form of the large, handsome, strongly-veined, pale-green leaves is attractive, and easily remembered. The stems are terminated by large panicles of small white and brownish flowers, which in the mass make the plant very effective. When it was first offered by our florists, we made a clump of the Bocconia on the lawn. In a few years we found plants coming through the grass many feet away. The clump was dug up, but it was a number of years before we saw the last of it. It may be said of Bocconia, a little of it goes a great way. The Rose Morning Glory, is one of the names under which the double *Calystegia pubescens* is cultivated. It is a plant closely related to the Morning Glory, with many handsome, rose-colored, very double flowers. This is also a native of China, and it is a pity it did not stay there. We once came into the possession of an old garden, in which this had been planted by a former owner. It came up everywhere, even through the brick walks. It should never be allowed in the garden. (See also *Convolvulus arvensis*, in another article.)

GATHER LEAVES.—The dry leaves in wood lots make excellent litter for summer use. Cattle, horses, and pigs cannot be kept clean without plenty of litter, and leaves are the best of all kinds of bedding, because every movement of the feet stirs them and covers the manure so that the animals are not soiled. The leaves that were not gathered in the fall, may be raked up now and brought into the yards and sheds, and kept for use. For young pigs, leaves are the safest litter that can be used, as they do not get entangled in them, and where sheep are kept and yarded at night, to keep dogs from them, a deep bed of leaves will be useful.

Farm Gardening.

Carl Brodhan, Luzerne Co., Pa., writes us: Perhaps your readers would like to know how I raise two and three crops on the same land. I manure my land every spring, and plow as early as the land can be worked. For peas I mark out the rows three feet apart, add some chicken manure, ashes and bone dust, then strew in my peas; the McLean's Gem, Carter's Premium, Bishop's Early and Daniel O'Rourke are the varieties. I cultivate twice, and before hilling up with the double plow, I go along the rows and plant for the second crop, sweet corn, such as Crosby's Dwarf, Early Minnesota, Eight-Rowed, Evergreen and Mammoth. The double plow will cover the corn. The peas will stand some frost, and need no brush. I hoe the corn once on the free side, and after the peas have been picked over two or three times, I take off the vines and do the last picking in the shade in the barn, at my leisure. I hill up the corn and draw the soil well over. The corn in this way, with a soft bed underneath, the manure well mixed with the earth, and no weeds, seems to do better than on land without the first crop. When it looks like rain I go through again, and sow turnip seed. As soon as the last ear of sweet corn is off, I cut the stalks for fodder, to give the third crop a good chance to grow. Beans and corn I grow in the same manner. Sometimes when one row of beans is well up and growing, I plant another one alongside of it, and when the first row is picked off, I plant Evergreen or Mammoth sweet corn in its place, for the late crop, which sells well. For corn, we get the first week or ten days, about twenty cents a dozen, then it goes down to fifteen and twelve cents. The small young ears sell for drying, at fifty and sixty cents a hundred. For peas, we receive the first week, two dollars a bushel, and then come down to one dollar and a quarter, or thirty-five and forty cents a peck. Beans sell at about the same rates. On the land occupied by Early Rose, Vermont, or Beauty of Hebron potatoes, I plant Early Valentine beans, the same day that I take off some potatoes. The vines go to the manure heap. These beans come on by degrees, and when cool weather comes, they sell well to the hotels for pickling, at a dollar and a quarter per bushel. After it is too late to plant beans, I sow turnips. I throw the potato vines between the rows, and cover with soil to serve as manure. For Golden Dwarf, or Boston Market celery, I take the best land and plant between potatoes or corn. I draw through with the double plow, manure a little, and plant the celery. The most of the blanching I do under a roof, or in trenches. Tomatoes are a good paying crop. Of squashes I plant only the Hubbard. Early beets and carrots pay well, but cabbages I can buy cheaper for my market wagon, than I can raise them. Corn for my stock I do not plant, as I can make more from sweet corn, and have good fodder.

Ornamental Weed—Convolvulus Arvensis.

A very common weed in England, and indeed all over Europe, is the Bindweed, *Convolvulus arvensis*. It has slender twining stems about two feet long, and bears a profusion of flowers, like miniature morning-glories, about an inch across. They are white, or various shades of pale red, and exceedingly pretty. As a weed it proves very troublesome. Its slender stems are prostrate, and run upon the surface of the soil until they reach a plant upon which they climb. In grain fields it binds the grain together—a peculiarity recognized in its common name—and on this account it is also called "Cornbind." The slender root-stocks creep for a long distance underground, and the plant is among the most difficult to eradicate when it once gets full possession of the soil. The plant is naturalized in some of the older states near the coast, and wherever it makes its appearance it should be exterminated when first noticed, notwithstanding its great beauty. The bindweed is occasionally cultivated in gardens by those who are not aware of its real nature, and is sometimes planted in hanging baskets, to which purpose it is well adapted, as shown by the engraving. The plant should never be tolerated in a garden, and there is some risk in its use as a basket plant. Should it ripen seeds, or if the old soil from a basket be carelessly thrown out, there is great danger that the weed may establish itself in cultivated grounds. English cultivators try to keep the weed in subjection by pulling up the still prostrate stems in a damp time, before the plant has begun to climb.

CONVOLVULUS ARVENSIS.

ANOTHER REMEDY FOR PHYLLOXERA.—M. Tougourdeau, who is both physician and Mayor of the French commune in which he lives, treats the

phylloxera to arsenic. One part of arsenious acid (white arsenic), is thoroughly mixed with twenty parts of ashes. The earth is drawn away from the vine, a handful of the mixture placed at the root and the soil replaced. The "Revue Horticole" says that while it is assured by persons worthy of belief of the complete success of this treatment, it gives it with "all reservation." As this method is quoted by other journals, we give it as a matter of news, and at the same time suggest to those inclined to experiment with it to be cautious. In poisoning the destructive insect with arsenic, it would be easy to so poison the soil as to render it unfit for the vines, or other plants. This is a new thing that is not to be adopted thoughtlessly.

The Bunch-Berry—Dwarf Cornel.

There are, in the Northern United States, nine species of cornel, several of which are popularly called dogwood. Nearly all are tall shrubs. The Flowering Dogwood (*Cornus Florida*) is the best known of these. It sometimes attains a hight of twenty-five or thirty feet; usually it is not over twelve. In all the other shrubby species, the small white flowers are in flattened clusters. In the flowering dogwood the flowers are small and greenish, in clusters of about a dozen, with each cluster surrounded by four large white bracts, or floral leaves. These bracts together commonly pass for the flower, but they merely form a showy appendage to the cluster of flowers. In May the woods are gay with this small tree, and it is cultivated by those who know its value as an ornament on the lawn, both in flower and in fruit.

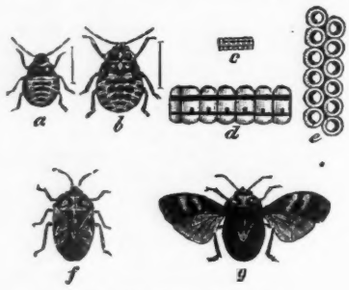
One of our species of cornel is an herb, all the rest being shrubs. This, the Dwarf Cornel, or Bunch-berry (*Cornus Canadensis*), is found in damp, cold woods and swampy places, in flower in May and June. Its stems, rarely over six inches high, appear in little clumps from an underground trunk. The leaves appear near the top of the stem in a whorl of four or six, while at the end of the stem is a cluster of minute flowers, surrounded by four large white bracts, as in the flowering dogwood. The engraving, though but about half the real size, gives the appearance of the plant. These two species are the only ones in the Northern States—the one a little herb and the other the largest woody species—that have

DWARF CORNEL.

the showy bracts to the flower clusters. The dwarf cornel, in autumn, has its cluster of flowers replaced by one of bright red berry-like fruits, which gives the plant the name of bunch-berry. The fruit is rather insipid, but is eaten by children, and is important as a supply of food for birds. Like many other plants found in the wild state in swampy places only, this little cornel will do well in a much drier soil. As a plant for a rock garden it is very popular abroad, and should be here. In a moist, sandy border, especially if it has a share of peat, this cornel will repay the trouble of transplanting, and it is excellent for the wild garden.

The Harlequin Cabbage Bug.

All who have had any experience with the Harlequin Cabbage Bug (*Murgantia histrionica*), agree that it is the most difficult to contend with, of any of the insect enemies of the cabbage. It is originally from Mexico, and came to the Atlantic States by the way of Texas. As this pest reached southern Georgia, at the beginning of President Lincoln's administration, it was called the "Lincoln Bug," a name which it still retains in some localities. The bug appeared in South Carolina in 1867, and in 1875, specimens came from Virginia for identification, and we published an engraving of it in August of that year. In the Report of the Department of Agriculture for this year (covering 1884), the entomologist, Professor C. V. Riley, gives engravings illustrating the life-history of this harlequin bug more completely than heretofore, which we here reproduce. Beginning with the eggs, these are shown of the natural size at *c*, and much enlarged at *d* and *e*, *d* being a side-view, and *e* showing them



HARLEQUIN BUG AND EGGS.

as seen from above. The eggs, usually deposited in two parallel rows of half a dozen each, have a singular resemblance to miniature barrels. They are greenish when first deposited, but soon become white, with black hoops. The resemblance to a barrel is still more increased, by a small black spot for the bung. The harlequin bug belongs to the true bugs (*Hemiptera*), which include the bed, squash, chinch, and other disagreeable and mischievous insects, including the plant-lice, of which the name is legion. As with other insects of this family, this in the larva and pupa states, closely resembles the imago, or perfect state. In hatching, the larva has only to take out the head of its barrel-like egg-shell, which it does with great neatness, and appears as at *a*. In this stage it is pale green throughout, but after changing its skin several times, it shows orange markings. The pupal form is given at *b*, while at *f* is the adult with closed wings, and at *g*, the adult with its wings extended. All in this engraving, save the eggs, *d* and *e*, are of the actual size. The light spots shown in *f* and *g*, are in the insect of a rich, deep orange color, and the dark portions, shining black. This contrast of colors makes the insect a very handsome one. While some of its near relatives, like the bed and squash bugs, have an odor, which it would be gross flattery to call pleasant, the harlequin bug is said to give off a really agreeable odor, and this is about the only good thing that can be said of it. This insect passes the winter in the perfect state, hiding in rubbish of various kinds, and is ready, the first warm days of spring, to commence laying eggs to provide for future progeny. It lays its eggs by preference on the cabbage and turnip; it has attacked mustard and radishes, and in the absence of plants of this family (the Mustard Family, or *Cruciferæ*), has been known to attack grapes and Indian corn, gathering in great numbers on the silk of late varieties. This harlequin cabbage bug, has proved to be a regular "iron-clad" against all the usual insecticides, and can be best kept in subjection, so far as is now known, by close watching, and hand-picking, and destroying the insects which have wintered over, when they first make their appearance on the early cabbages. Hot water, and an emulsion of two parts of kerosene to one of milk, has been suggested as likely to be useful. Every egg-laying female that is destroyed, heads off much trouble. This insect is quite too common in Virginia, and has entered Maryland and Delaware. How much farther north it can endure the winters, remains to be seen, but every cabbage grower in the Middle States should be on the lookout for its first appearance, and carefully destroy it.

The Varieties of the Cockscomb.

Probably but few who admire the large, velvety, dark-crimson crests of the cockscomb, are aware that these are due to a malformation which has become fixed by cultivation. These combs or crests are sometimes of enormous size; some even have measured eighteen inches across. They show no distinct flowers. It not rarely happens that the parts of a plant, that are usually distinct and separate, grow together; it is not rare to find twin cucumbers, formed by two which are united for their whole length. This union often takes place with stems. Squash vines are sometimes found grown together for some distance, and a similar growth is often seen in the asparagus. The Cockscomb, *Celosia cristata*, is an annual, a native of the East Indies, and in its normal state produces numerous erect branches, as in the engraving, terminated in time by long spikes of flowers. The flowers themselves are small, and not at all showy, but each has at its base several bracts, or floral leaves, which are highly colored. These are usually dark-crimson, but there are white, yellow, and rose-colored varieties. In the form cultivated as cockscomb, the stems and branches are united and soldered together, as it were, into a confused mass, which is sometimes very wavy on the top. In the branching form, only the flowers on the lower portions of the branches are fertile; accordingly those on the lower parts of the crest only, produce seeds. The velvety texture of the crests is caused by the ends of the numerous bracts that appear at the surface. Though these crests are monstrosities, the peculiarity is well fixed. This is one of the oldest of garden plants, having been cultivated in English gardens for over three hundred years. The variety known as Japanese, is peculiarly rich in color. To raise the largest crests, and of the most brilliant color, the soil must be

BRANCHING COCKSCOMB.

excessively rich. The finest and largest specimens are produced by growing the plants in pots, and shifting them into larger pots as they need it.

INSECT PESTS. — As a stone rolling down a hill gathers force, so the neglecting of the immediate destruction of insect pests results in such an overwhelming increase that it is impossible to stay its progress. It is easy to destroy a nest of young caterpillars, or crush a potato beetle, but if this is neglected until the brood is perfected and spread abroad, man is unable to contend with the army.

The Annual Chrysanthemums.

The perennial Chrysanthemums, which include the Chinese and Japanese, are flowers of great value, on account of their late period of blooming, and the richness of their colors. There are, besides these, several annual species, which are showy border flowers. Though not often seen in our modern gardens, these annual chrysanthemums were very popular half a century ago, and like many

Fig. 1.—CHRYSANTHEMUM BURRIDGEANUM.

other good, old-fashioned plants, have been displaced by others of less merit. Among the annual species, one of the most showy is *Chrysanthemum carinatum*, from Barbary. It is a much-branched, hardy annual, about a foot and a half high. In its normal form, the disk, or central portion of the flower-head, is purplish brown, while the ray flowers are yellow, margined with white. A number of varieties have been obtained from this species, one of the most showy of which is *C. Burridgeanum* (fig. 1). The flower-heads of this variety are of a very large size. The center, or disk, is

Fig. 2.—"GARDEN CHRYSANTHEMUM."

blackish purple; the rays are pure white at the tip, rose purple below, and at the base yellow, forming an exceedingly brilliant combination of colors. Another annual species, *C. coronarium* (fig. 2), often called "Garden Chrysanthemum," is a tall species, two or three feet high. The simpler form has a disk of greenish-yellow, surrounded by dark yellow rays; here the disk is filled with ray flowers. These annual chrysanthemums are among the plants that one most frequently sees on balconies, and in window boxes all over Europe. They are well suited for such places, on account of the ease with which they may be grown, their great hardiness, and the long time they remain in bloom.

Mildew on Grape-Vines.

The greatest loss to the grape-grower comes from mildew. It usually appears after a rain-storm in warm weather. It makes its first appearance as whitish or grayish spots on the lower side of the leaf; the upper surface soon becomes discolored, and the portions of the leaf thus attacked in time are completely dead. The disease is more prevalent in moist seasons than in dry ones, and attacks some varieties of grapes more than it does others. Whatever tends to produce strong and healthy foliage, aids the vine to resist mildew. Vines that are crowded by too close planting, and have been allowed to grow at random, without having the growth controlled by proper pinching, are more subject to mildew than those that have been properly cared for. Among the varieties in common cultivation, the Delaware is especially liable to be attacked, while the Concord is the least so. Mildew is a minute form of vegetation that lives upon the grape-vine. The only remedy thus far found, is sulphur, which should be freely applied on the first appearance of the whitish or grayish spots upon the leaves. Bellows for applying sulphur are sold at the implement and seed stores, and it is hardly possible to apply it properly without one of these. The application should be made in a still day, and the bellows is to be operated in such a manner as to fill the air with a fine dust, which will settle upon the vine. The application should be repeated in four or five days after the first. The French journals have recently had much to say about "Polysulfure Grison," as a remedy for mildew. This preparation, which is also called "Liquide Grison," and "Eau Grison," is really a solution of sulphide of calcium, and has been in use for some time in this country for mildew upon roses and other greenhouse plants. The liquid is prepared by boiling three pounds each of flowers of sulphur and of lime in six gallons of water until reduced to two gallons. When settled, pour off the clear liquid and bottle it for use. In application, one part of this clear solution is mixed with one hundred parts of water, and applied to the vines with a syringe or garden engine —whichever will distribute it more economically.

Best Varieties of Celery.

L. Mifflin, Lancaster Co., Pa., writes to the *American Agriculturist:* "Last year we obtained our seeds from a well-known seed firm. The celery made the raisers grumble. They want no more of that kind. The seed was of well known varieties. My men are going to put out several acres of celery this season for me, instead of tobacco, as they have been doing formerly, and on the same terms, viz., 'on halves.' I am anxious that these men who do the work shall have a good crop. Which is the best variety?"—We do not know, and we think no one except a quack pretends to know. The kinds you name are good—provided they *are* good. But celery, like turnips, cabbage, beets, carrots, parsnips, salsify, onions, etc., as we now desire to grow it, is an artificial plant. Naturally, it runs up to seed the first year, and produces hollow stalks. We want plants that will not produce seed till the second year. We want celery that produces nice, solid stalks, composed, not of woody fibre, but of tender, crisp cellulose. This is not difficult to obtain. But we must look, not to the *variety*, but to proper care in selection on the part of the seed grower. There are many complaints about celery running up to seed. The trouble, in part, may be due to sowing the seed too early in hot-beds, and setting out the plants too soon; but we suspect that a still more frequent and potent reason may be found in the fact that the seed is grown in southern latitudes, where the plants are not transplanted, but allowed to run up to seed the first year.

The Odor of the Hay Field.

Going from New England to a Western State, many years ago, the writer was struck with the difference between the two localities in the haying season. In the older States, the air at haying time, is redolent of the most delightful fragrance, making it a pleasure to be out of doors. At haying time in the western locality, there was only a clean, weedy odor, quite unlike that to which we had been accustomed. In looking into the reason for this lack of pleasant odor at haying, we examined the hay, and while all the usual grasses were present, we could find no trace of the Sweet-scented Vernal grass, *Anthoxanthum odoratum*, so common

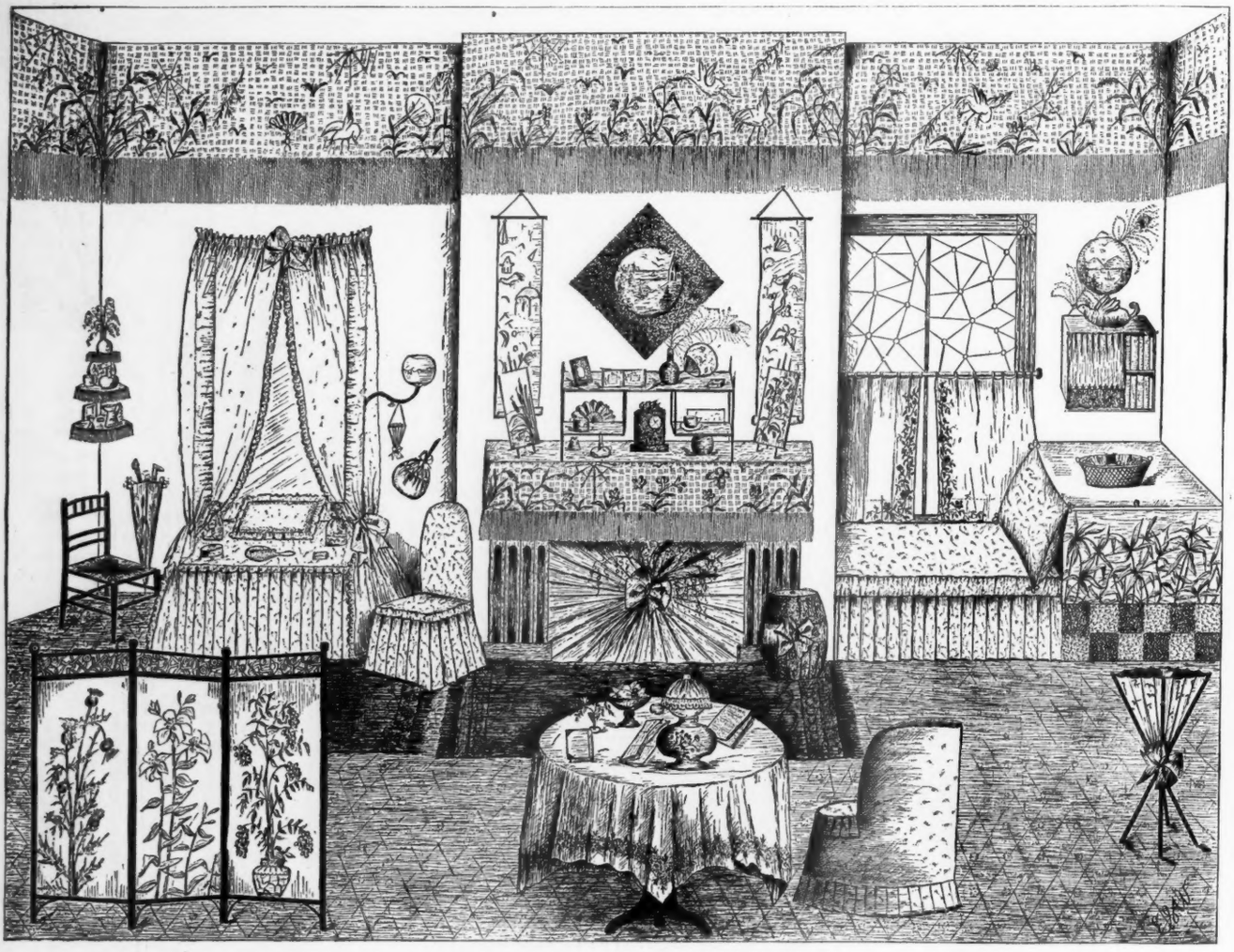
SWEET-SCENTED VERNAL GRASS.

in eastern meadows. We give an engraving of the Sweet-scented Vernal grass, which will allow it to be identified when in flower. In itself, this grass has little value. Indeed, its chief merit lies in its odor. This is developed as the herbage dries, and a few spears of this grass will impart its fragrance to a large mass of hay. This grass should always form a small part of a mixture for seeding a lawn.

PLANT MORE ORCHARDS.—As nations become more prosperous and refined, the consumption of fruit increases. As the world generally is improving, we find fruits of various kinds in increasing demand. Apples and pears are especially staple articles of commerce, and the foreign demand for these fruits increases very much every year, as does the home consumption, and the planting and cultivation of orchards should be studied and more largely practised, where the conditions are favorable.

A Home-Adorned Room.

The frieze is made of white matting, which is fringed out one-quarter of the width, and decorated with bright-colored Japanese figures, cut out of cretonne, and pasted on as the taste suggests. The piece around the mantel is made is made in the same manner, and tacked on with brass-headed nails. The top of the window is covered to imitate stained glass, by a paper made for the purpose. Make half-curtains for the lower sash, of pongee, and embroider a vine up the front of each half; hang them on a rod with rings. The window-seat is constructed of a box. It will be best to have one made for the purpose, as it should be strong and well put together; have it made the depth of the chimney, and within four inches the hight of the window. Place cleats on the inside of the box for the lid to rest on. Hinges and a lock and key will finish the carpenter's part of the seat. Select a pretty pattern of cretonne for the coverings, and make a plaiting of it to tack across the front of the seat. Then make a cushion for the top out of an old comforter, folded together several times, and tacked on in a few places; cover it with cretonne. A pillow for the end will make it complete. An ordinary dry goods box of the proper size will answer for the end; fit it in between the seat and the wall. Paper the exposed sides with a piece of wall paper bordering, covering the lower part with cretonne. Cover the lid with felt, and line it neatly with paper muslin. This will be found very convenient for a clothes hamper. The little book-case above is made of a box with a partition through the middle, to form a shelf; it is then ebonized inside and out. A little pongee curtain, with a piece of fancy ribbon stitched around the bottom, is hung with small brass rings upon a piece of stout wire in the front. The standard scrap-basket is made of a Japanese umbrella, set in a frame made of four round curtain sticks, which are ebonized and fastened together as seen in the design. Tie a bow of broad ribbon around where the sticks are fastened together. The chair, which stands by the table, is made of a barrel sawed down to the desired shape. The head is fastened in for a seat. It is then covered with cretonne, and a cushion made for the seat in the same manner as the one for the window-seat. The table cover is made of felt, with a band, plush or velveteen, sewed on with a fancy stitch. The panels for the screen are made of dark-red velveteen. The flowers upon it can be painted, or cut out of cretonne, and fastened on by working a button-hole stitch around the edge of each outside part in a color to correspond with the flower or leaf. For a dressing table, have a rough table made of the width desired. Make a plaiting for the bottom of it out of the cretonne. Lay two thicknesses of sheet cotton on the top and cover it with silesia, and also with cream-colored swiss, edged with linen lace. Cover the frame of the glass with silesia, drawn smoothly over it, and the swiss puffed on. Have a board made to hang the curtain up on, the width of the glass and twelve inches deep, with the corners rounded. Cover it with the silesia and swiss, and fasten it on the top of the glass with hooks and staples. Hang the glass so that it just clears the table. Tack the curtains on the board, draw them down to the sides of the table in graceful folds, and tie with broad satin ribbon. The umbrella case is made of cream-colored duck, with cat-tails embroidered on it. The foundation of the case is made of a thin board, one large pocket being tacked on, and two formed of it by tacking it down in the middle. The little corner shelves are covered with felt, and trimmed with fringe. The catch-all is made of a Japanese fan, with a pocket of shined satin fastened on it, and a bow on the handle. The chair beside the dressing-table is an ordinary chair with a couple of inches sawed off of the legs, and upholstered with the cretonne. The fire-place screen is made of silesia, plaited on a frame which fits the fire-place. Grasses and ribbon are used to ornament it. A keg covered with velveteen and trimmed with ribbon, forms a receptacle for shoes and slippers. The arrangement over the mantel for holding bric-a-brac is simply a bamboo book shelf, set on the mantel. The frame above it is a square board, with an opening cut into it to fit the plaque, and covered with plush or velveteen. We would suggest cream-colored cretonne, with dark-red flowers or a vine over it, and the fancy strings the same shade of red. Aim to have harmony in color.



A HOME-ADORNED ROOM.

Drawn and Engraved for the American Agriculturist.

APPLE SAGO PUDDING.—One cup of sago, swelled in six cups of water. Stew ten small apples, mix with the sago, and bake three-quarters of an hour. Salt, and eat with cream and sugar. It is better warm than cold, but acceptable either way.

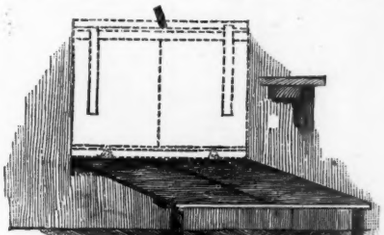
Social Entertainments.

To entertain handsomely, is the ambition of the cultivated woman who delights in hospitality. To do this, it is not necessary to go to a great expense of time, strength or money. But there are certain rules of etiquette observed in good society, which are indispensable, and many others which give style and elegance to even a very simple entertainment, which it is desirable to know. Not that one can always follow fashion in such things, for few are fleet enough to keep pace with this fickle goddess; but any lady of good sense will know just where to stop. Very few, comparatively, can afford to give large and expensive parties. These are now, for the most part, given into the hands of caterers, who furnish everything needed, including dishes and table linen. Much of the pleasure of entertaining is thus lost, for does it not add very much to the pleasure of every true housekeeper, to know that the table to which she has invited her friends, has been prepared under her own superintendence, and perhaps by her own hands? In a recent notice of some delightful receptions given by a lady of note in New York City, to a few friends, it was said: "The refreshments were prepared and daintily served by the lady herself—her kitchen being a small adjoining room." Formerly ladies in society felt it a duty to give an evening party once a year, to which were invited all to whom they were socially in debt. A large, promiscuous assembly thus brought together, could not be otherwise than stiff and formal. These have given place to smaller and more select gatherings, to which are invited only those whose tastes and pursuits are congenial. The most informal of all modern social entertainments, are lunch parties. In this country, where gentlemen rarely find leisure between the hours of twelve and two o'clock, for visiting, these, from necessity, are mostly ladies' gatherings; but it is an old English custom for gentlemen to entertain each other unceremoniously at lunch. Everything should be informal and inexpensive. Invitations may be given orally, or written in easy style, as, for instance: "Will you come and meet a few friends at lunch Tuesday, at one o'clock?" At some fashionable watering places, ladies give their gentlemen friends a general invitation to lunch at any time without further ceremony, and the table is daily laid with the expectation that some will "drop in." Of course, guests will inform themselves of the hour, and give no trouble by their tardiness. Salads, cold fowl, game, ham, bread and butter, ice cream, jellies, cakes and fruits, are the usual refreshments offered; or in winter, bouillon, oysters, or a hot lunch altogether, may be preferred. In this case, that is, for a hot lunch, there should be few vegetables, and as the dessert is placed on the table at first, these should be handed round by a waiter. Another delightful way to entertain in the country is, to give a garden party. Two things are, however, indispensable—a lawn and a pleasant day—and a broad piazza, most desirable. Out-of-door games are provided, and there is often dancing, and refreshments are served in the open air or indoors, but the dishes are usually cold. The hostess receives in her hat or bonnet; guests wear theirs, and also short dresses. Much care is needed that everything be done neatly by the servants, and of course guests will observe the same proprieties which are required at an indoor feast. Small tables and camp stools should be provided for the convenience of guests. Ladies who reside in suburban towns, either the year round or through the summer, have an opportunity to give much happiness to city friends, by opening their homes for generous hospitality. Those are especially fortunate who have small fruits—a strawberry patch, and a vegetable garden, the products of which are so delightful to those who are usually supplied from city provision stores—and it is a privilege fully appreciated to be invited to dine at a table where such things have been freshly brought from the garden. One of the principal requisites to entertain successfully—and by this is meant the giving of real pleasure to guests—is tact on the part of the hostess. Any accidents, or blunders of servants, however annoying, should be quietly passed over, and her whole aim be the comfort of others. It is unnecessary to say that the table cloths and napkins should be the best that can be afforded, smooth and spotless. Thick baize or Canton flannel, placed under the tablecloth, makes it look much nicer. Napkins should never be starched. As many knives, forks and spoons should be placed at the side of the plate of each person, as will be needed in all the different courses. At a private dinner or supper table, small bouquets, one at the side of each person's plate, are preferable to a mass of flowers in the center of the table, and these bouquets are much prettier made up of a single kind of flower and its leaves, each person having a flower differing from the others.

ETHEL STONE.

Kitchen Table.

W. H. H. Goff sends us a sketch (see engraving), for a kitchen table, that can be swung up against the wall when not in use. The whole table, cleats



FOLDING KITCHEN TABLE.

and legs, can be made of inch lumber, dressed on all sides. The mode of hinging the legs to the cleat, is shown in the small figure on the right. The illustration shows the table at rest, for use, on the floor. The dotted lines represent the position of the table when set up against the wall and held by the button. The legs are hinged inside, so as to drop down against the table when that is turned up against the wall in the manner here shown.

Canning or Bottling Peaches.

AUNT HATTIE.

The housekeepers who read the *American Agriculturist* many years ago, will be glad to welcome back the very practical "Aunt Hattie." Her notes on canning peaches came so late that we are only able to find room for an abridgment of them. She promises articles on putting up other fruits, pickling, and other household economies, which she treats so well.

THE PEACHES AND PEELING.—With peaches that are fully ripe, the skin may often be pulled from them. Usually it is necessary to peel them, which I do with a silver fruit knife. I have sometimes loosened the skins by the use of ley. I make a strong ley from hard-wood ashes and boiling water. When this is settled and clear, the peaches are immersed for twenty seconds, or even less. When I have a basket of peaches, I pick out the mellow ones to can, and leave the others to ripen, whether there may be enough for one bottle or ten. If unripe peaches are used for canning, they will be unripe peaches upon the table next winter.

THE BOTTLES.—If the bottles, or cans, have been used before, care must be taken to fit the covers and rubber rings so that they will be perfectly air tight. Success in canning depends upon this. If the rubber rings are of doubtful quality, discard them, and procure new ones. Success depends upon a tight joint between the jar and its cover. Each jar, its cover, and rubber, should be examined and tested beforehand.

TWO METHODS OF CANNING PEACHES.—The most common is this: Prepare the bottles first. Peel the peaches. Make a syrup in a bright kettle, using a teacupful of sugar to a pint or quart of water, according as it is desired to have the fruit more or less sweet. When the syrup boils, add ten, twenty, or more peaches—enough to fill the bottle. When the whole is heated boiling hot, wrap a wet cloth around the bottle, and transfer the peaches to it by means of a fork. After all the peaches are in, fill up with boiling syrup, brim full; put on the lid and screw it down at once. Fill another bottle in the same manner. If more syrup is needed as the bottling goes on, make it. In this manner, one bottle, or several, may be put up at a time, and there is no hurrying.

ANOTHER METHOD—Successfully employed by my aunt, is, to fill the bottles with fruit, add the needed syrup, and cook the fruit in the bottles in a water-bath. This may be done with a single bottle in the tea-kettle, or in a sauce-pan, but a dozen or more bottles may be done at once in the wash-boiler. Make a platform, by tacking lath together, to keep the bottles from coming in contact with the bottom of the boiler. The bottles are packed full of raw fruit, and syrup is added to fill the spaces. The bottles being filled and placed on the lath platform, the boiler is filled up to the necks of the bottles with water. The boiler being of course on the stove, the water soon reaches the boiling point. It is then moved to the back of the stove, where it can be kept at the simmering point, or about two hundred and ten degrees. The fruit in cooking will shrink somewhat, and there should be hot syrup at hand to fill the bottles. When the fruit is heated through, which will require an hour or two, the caps are put on and screwed tight.

SHALL THE STONES BE REMOVED?—In either method of canning, much room in the bottles of peaches is saved by removing the stones. A bottle that will hold but ten entire peaches, will contain fourteen if they are halved and the stones removed. The flavor of the meat is desired by many, and this may be secured by cracking the stones and adding a few meats to each bottle.

KEEPING CANNED FRUIT.—The bottles or cans may be kept in any cool closet, but on the approach of winter they had better be removed to the cellar, to avoid loss from breaking in a sudden cold snap.

Handles for Pitchers.

A jug or pitcher without a handle, is generally considered past its usefulness. But an economical person, who believes a few pennies saved, are equal to so many earned, may re-handle a jug or a pitcher with great ease, in the manner shown in the accompanying engraving. It has been said very truly that the *American Agriculturist* can be read by a man who cannot read, because of the numerous interesting illustrations in it, each of which tells its own story, in the way of an object lesson. This engraving tells its own story. It is sent by C. F. Alkire, Madison Co., Ohio.

HANDLE FOR PITCHER.

TOMATO CATSUP.—Half a bushel of tomatoes, six onions, half a pound of sugar, one pound of salt, quarter pound ground mustard, two ounces ground cloves, two ounces black pepper, quarter ounce cayenne pepper, a handful of peach leaves. Boil all together two hours, or longer if the tomatoes are very watery, and just before taking from the fire add one quart of cider vinegar. If it boils after the vinegar is added it will turn dark. Pour through colander; bottle and seal.

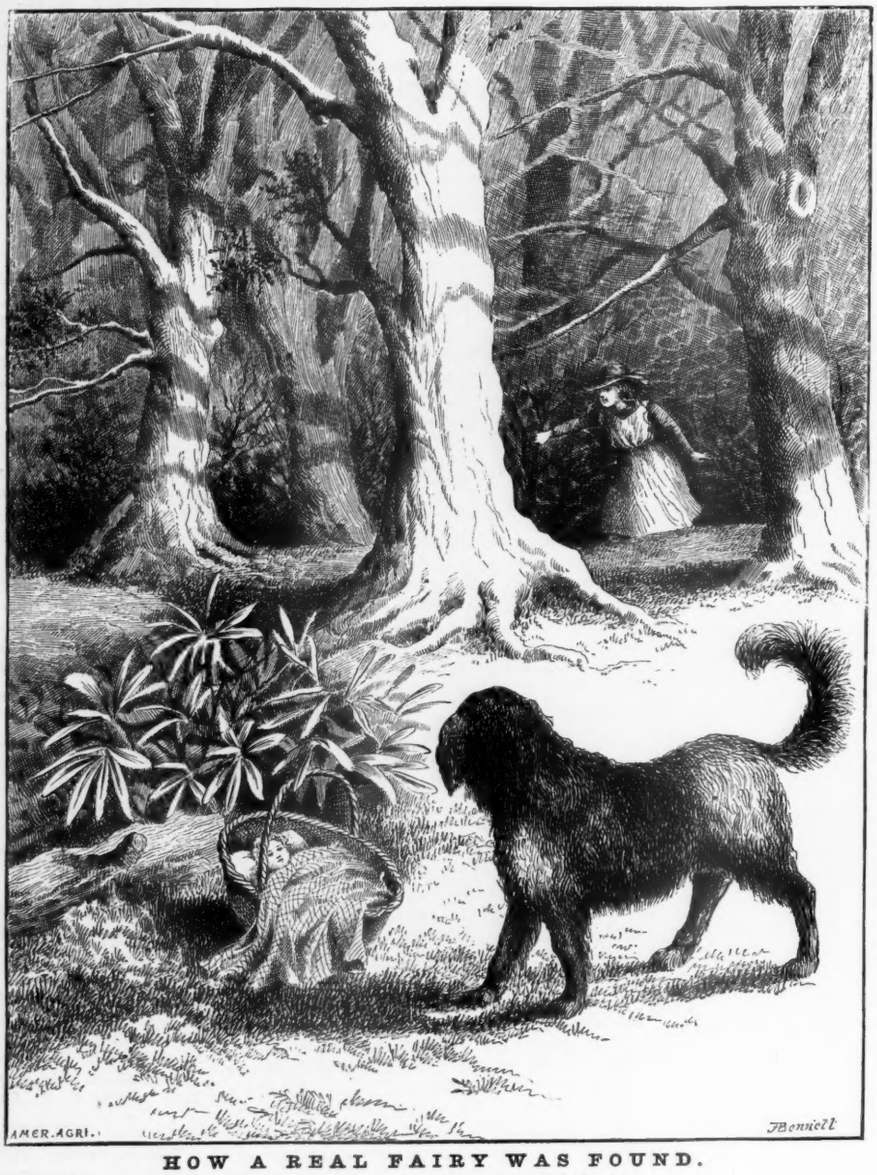
TOMATO PICKLES.—One peck of green tomatoes, six peppers, four onions; sprinkle one cup of salt through them, and allow them to stand one night. In the morning pour off the water. Boil in a kettle, with vinegar enough to cover them, and one cup of sugar, one tablespoonful of cloves, one tablespoonful each of allspice, cinnamon, and horse-radish, until quite soft. Pack in stone jars.

BOYS & GIRLS' COLUMNS

What Bertie and Lion Found.

BY A. L. BURNHAM.

"Where are you going, Bertie?" said Mrs. Wilbur, as her little daughter came into the kitchen one morning, with her hat on.—"Out into the woods," said Bertie.—"What for?" asked her mother, unconcernedly, for Bertie was in no danger of being lost, as she was perfectly acquainted with every part of the wood.—"I am going to hunt for a fairy," answered Bertie. "Don't you think, mamma, that if I should go very easy and look very carefully, I might find one asleep under a fern?"—"But," said Mrs. Wilbur, "the fairies play all night and go home in the morning."—"Well," said Bertie, "you know one little girl fairy might be very tired, and lie down a minute to rest and go to sleep, and not wake up until it was noon."—"Very well, don't stay too long; and find a good fairy, for my little girl's playmates must be good." And Mrs. Wilbur went on with her work, soon forgetting all about Bertie and the wished-for fairy.—Bertha Wilbur was ten years old. She was the only child of educated and well-to-do parents; but although she lived very happily with papa and mamma, and had many advantages of books, pictures, music, etc., which are denied to many country children, she often felt very lonesome, and would wish for a little brother or sister to play with. The neighborhood in which Bertie lived was rather aristocratic and old, and there being no children in it, with the exception of Bertie, the two adjoining school districts had been united, so the nearest school was three miles away. On account of the distance, and because Mrs. Wilbur was very strict in regard to Bertie's choice of playmates, the little girl had never been to school, and her parents had been her only teachers. But being an only child, she was more advanced in many things than most children of her age. She was a nice little reader, could write very well, and played the piano with some grace. But Bertie's favorite occupation was reading; and as she was furnished with a plenty of books suited to her age, she was seldom in the house without a story book in her hand. She was very fond of fairy stories, and had read a great many tales of sylphs and sprites. She had a large dog, with whom she had roamed over the fields and woods of her father's farm, until she was at home in its remotest part. When Bertie left the house she went to find Lion, her dog, and calling "Lion!" "Lion!" once or twice, in a moment he came bounding along with his pink tongue lolling out of his great mouth, and his tail wagging like the top of a fir tree in a storm. Bertie gave him a pat on the head, and away he went gamboling along ahead, now and then stopping to wait for his mistress, and then rushing along far ahead. The woods were about a quarter of a mile from the house, and were on rising ground; so Bertie did not hurry, for she was not a strong child, and climbing was rather tiresome for her. By the time she had reached the top of the hill, Lion was nowhere to be seen, but as he made it a point to hunt rabbits whenever his mistress went into the woods, she was not at all surprised. Wandering along, picking here and there a wild flower, and occasionally



HOW A REAL FAIRY WAS FOUND.

Drawn and Engraved for the American Agriculturist.

stopping to watch a squirrel or bird, Bertie had forgotten all about Lion, until far in the woods she heard him barking vigorously. But supposing he had treed a squirrel, or had found something else of interest, she paid no heed, until Lion came crashing through the underbrush, and made Bertie follow him by pulling at her dress, and then running along before her. "Why, Lion, what is the matter?" asked Bertie. "What have you found? Well, you're a nice doggie, and we'll go right and find it."—"Bow, wow, wow," said Lion, and soon disappeared from Bertie's sight, but kept up his call. Bertie followed as quick as the tangled vines and thick bushes would let her, and at last found herself in the middle of the wood beside an old wood-road, which had not been used since the winter before. Lion was there and ceased to bark when he saw his little mistress, and ran to her, frolicking around so gleefully, that Bertie was for a minute quite bewildered. "Now, Lion, I've come, why don't you show me what you've found? Oh! oh! oh! My sakes! You blessed little darling!" cried Bertie in delight—for what do you think Lion showed her? A tiny bit of a baby in a market basket.

Of course Bertie did not stop to think of anything else but to take the basket and hurry home as fast as she could. Her burden was quite heavy, and she could not carry it without some difficulty; but she was too much delighted and excited to rest. Lion trotted along beside her, and every minute or two he would put up his nose to the basket, to see if its contents were safe. Bertie was very tired when she reached the house, but she scarcely realized it, being so wrought up with delight. She did not once think but that she would keep the baby always, and forgot that the wee thing had a mother, who was perhaps now seeking after it, and nearly frantic with sorrow at its loss. No, Bertie was only ten years old, and did not think of those things. Bang went the sitting-room door, and in rushed Bertie with her basket.

"Oh! Mamma, see what I've got. See its little hands; and oh, it's going to open its eyes, I guess! It was asleep, and I took it, and came home quick! Oh, my! and Lion barked first, and I went, and oh, oh, oh—e!" and Bertie was actually obliged to stop and take breath.—"Why Bertie! What have you done, where did you find this baby?" and Mrs. Wilbur opened her eyes in great astonishment. After Bertie had sufficiently gained her breath, she told her mother all about the finding of her "fairy," as she persisted in calling the little thing. The baby was not over three weeks old, and was so small that it was almost a fairy. It was a little dark-eyed girl, and even at that tender age, evinced so much brightness and good humor, that the family fell in love with it at once. Bertie's father immediately made inquiries about the neighborhood, in respect to the parents of the child, and endeavored to find out the facts relating to the abandonment of so small a baby. After some trouble, Mr. Wilbur learned from a distant farmer, that a band of gypsies had been camping in the woods near his farm, but having appropriated the poultry and vegetables of some neighboring farmers, they had been driven away. According to this man's story, there were in the party two men, three women, and several children large enough to walk and run. So no evidence as to there being a very small child in the party, was found. After obtaining this information, Mr. Wilbur had the woods searched for miles around, but with no success, and finally, the search was given up, and Mr. and Mrs. Wilbur decided to

keep the child (to Bertie's unbounded delight), until some one should claim it, or its history should be cleared up. It need not be told how proud and fond Bertie was of her little "fairy," and when the baby grew old enough to laugh and chatter, and run about, she watched it with patient care.

As soon as the child was old enough, Bertie taught it to read and write, and do various little things becoming to childhood. For we must remember that as fast as baby grew, Bertie advanced in years, and was now quite a little lady. No other name than Fairy had ever been given to the child, because Bertie declared that she was a little black-eyed sprite whom she had found in the woods. So Fairy grew as fast as a daisy, and when she was about five years old, Bertie induced her parents to adopt her, and she was christened with the name of Fairy Wilbur. Fairy was such a pretty, cheerful and clever child, that she won the love of everybody, but from Bertie she was inseparable. Bertie always said that she had a good fairy, but that Lion must have the praise of finding her, and when Bertie would ask Lion if he ever found a fairy, he would run to Fairy with a loud "bow wow," and a vigorous wag of his tail.

How the Trout Were Tamed.

My father never emptied his basket after a day's sport without telling us of the powerful intelligence that trout possessed, and declaring that they could be educated.—"What!" said my brother Bob, one day, "taught to say A, B, C?"—"Well, not quite," replied my father, "but if caught when young, they can be tamed, taught to eat from the hand, and to know each member of a family." My mother, who had listened to so many schemes, laughed incredulously; but father, with a shrug of the shoulders, said: "Never mind, if I can get the children interested, we will try the experiment."

At the foot of a green terrace in the rear of our house, was a never-failing spring. A heavy board box, twelve feet long, nine feet wide and three feet deep, was so arranged that the fish should have running water and the box not overflow. I spent one day with my brother in gathering pebbles to strew on the bottom, and when all was complete, we pronounced it a lovely home for the trout.

The first day of June was chosen for stocking the spring box. We rose early, and dug a full supply of angleworms for bait, and my father carefully removed the barbs from several fine Limerick hooks, so that the mouths of the fish we caught should not be torn. Eight o'clock found us fully equipped and on our way to a noted trout stream. We leaped eagerly from the wagon on reaching the brook, and my father, after tying the horse in the shade, filled a tin pail with water, baited a hook and cast it into the brook. He directed it under a rock, and in a moment, with a quick movement of the rod, known to practiced anglers, threw a dark speckled trout upon the grass. He caught him carefully in his hand and plunged him into the pail, where he swam wildly about. Another baiting of the hook, another cast into the water, and another trout, larger and lighter-colored than the first. It was a perfect day for "bites," for at the end of two hours we had seventeen "speckled beauties." Father pronounced seven of them "too large to handle," so they were doomed to the frying-pan; but ten bright, sparkling little fishes of from four to six inches in length, were safely conveyed home and placed in the spring.

They were at first so shy that for days we saw nothing of them, but as the earthworms that we threw in disappeared, we concluded that they were alive and doing well. After a time they began to swim about and eat in our presence, and at last would come to the surface of the water and take the worms from our fingers. They grew very fast, and it was soon so difficult to find worms enough to satisfy them that we fed them on bits of raw beef. They relished this greatly, and would eat a great quantity. As they increased in size, and their teeth grew strong and sharp, they would often bite and wound our fingers in plunging for food. So we placed the bits of meat upon the end of a bluntly-sharpened stick, and in swaying it about, taught them to leap for their food. After a little practice they would leap entirely out of water and over a crossbeam in the spring, as seen in figure 1.

After having had the fish a year, my brother came

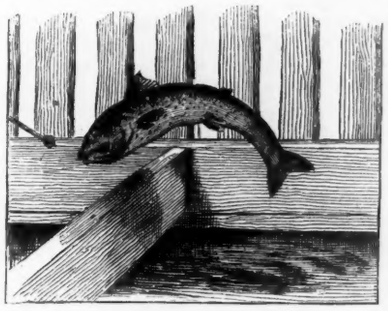


Fig. 1.—THE TROUT'S LEAP.

home from a fishing excursion with a live pickerel, and unknown to us, placed him among the trout. Imagine our horror the next day, on finding the cruel fellow swimming about contentedly, with one of the trout partly swallowed, the tail protruding from his mouth. We lost no time in catching the pickerel in a net and putting an end to his existence. Several attempts were made to steal our pets, but we secured two watch dogs and placed them in kennels on each side of the spring. The trout had little families from time to time, but like other fishes they devoured their young.

At the end of six years our trout weighed from four to six pounds each, and so tame did they become, that when any of the family visited the spring they would come to the surface of the water and splash about in a most sociable fashion. They became very popular, and hundreds of visitors to our city came to see them. Some were very incredulous as to their tameness, and one among a party of gentlemen stated that it was impossible for fish to leap a distance for food. I offered to feed them and convince him, but he said quite emphatically, "No! give me the meat, there may be some trick about it." He took a small bit of beef between the thumb and finger and held it near the water. Three of the trout made a plunge, one securing the meat and cutting the gentleman's finger with his teeth. The wound extended the whole length of the finger and bled profusely, but he wound his handkerchief about his hand in the

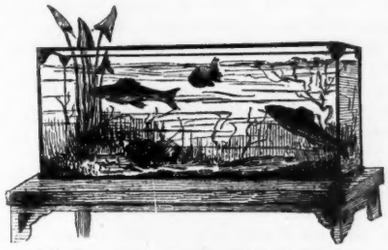


Fig. 2.—THE TROUTS' CITY RESIDENCE.

best of nature, and said, laughingly: "I am convinced of their skill in feeding."

At the end of the sixth year our trout began to show signs of old age. They moved about with slower motion, several lost their teeth, and two became blind. We felt that their "days were numbered," and were sad as we realized that but a short time remained for our enjoyment of them.

In the fall, alterations were made on our premises, so that it would be inconvenient to have the trout in the spring, and just as we were wondering what we should do with them, the well-known Barnum came along and suggested that they be exhibited in the Museum, then at the corner of Ann street and Broadway, New York City. Just at this time two of the fish died, one from an injury received in falling on the crossbeam in feeding; the other leaped out of a hogshead in which he had been temporarily placed. It was decided that those remaining should be sent to Barnum, so he had a large tank with glass sides prepared in the Museum, through which the Croton water flowed, and then sent a man with a large tin tank in which to have them conveyed to the city. The man was also provided with an air pump and at intervals during the journey, pumped fresh air through the water. One of the trout was injured in handling and died before reaching New York City. Six, however, arrived in good condition, and were safely deposited in the tank. Many ridiculous statements appeared in the city papers on their arrival. One writer declared that "they were stuffed specimens driven through the water by springs," and another that they were "suckers with painted mouths." But all finally acknowledged their genuine beauty, and they proved to be a great attraction during the winter.

In the spring Mr. Barnum wrote that the trout could not possibly live in the Croton water during the hot months, and suggested that they be returned to us; so we made arrangements and received them. They were at first sick and languid but after two or three days revived somewhat in the spring water. They moved about with less and less vigor however, and had to make great effort in leaping for food. We wished to take the best of care of the pets we had grown so fond of, and grateful for the years of pleasure they had given us, we afterward threw all food into the water, no longer troubling them to leap for it. They were again taken to the Museum in October, and in January I saw them in a tank, as seen in figure 2. Three had died and the remaining three were swimming about slowly and feebly. A month later they all died. I noticed the water was covered with a green scum of impurity, and although I knew that their lives could not be greatly prolonged, I have always felt that at the last their days were shortened by their visit to the city. AUNT IDA.

A Dakota Boy's Letters to His Friend.

FRIEND JAMES.—Your kind letter, duly received. You ask what we have done here this summer and what we can raise. We have made some mistakes in our farming, the most notable one being with the corn crop; we planted nearly twenty acres on last year's breaking. A part of it was "back-set," the sod turned back, and some was pulverized with a disc harrow. It made but little difference in the result, as it was impossible to use a cultivator on most of the ground, owing to the sod being broken late and not rotted. The corn on the sod, with no cultivation and no weeds, grew better, produced more, and ripened earlier than that on "back-set" land. Pumpkin, squash, melon and all other vines also grew better on sod than on "back-setting." As to what we can raise—what we cannot raise is easier told. We tried a long list of field and vegetable seed for testing varieties, but are not satisfied with the results, and will plant many of the same varieties next year, for further trial. The King Philip and other eight-rowed flint corns gave the best results. Early Marblehead Sweet Corn was by far the best yielder tried. The late sweet corns were just tasseling out as a hot dry spell came on and nearly all blasted or failed to fertilize. Our "watermilyuns" were splendid. We planted a number of rows of sunflowers in the garden. Our best tomatoes planted near these failed entirely, either from the shade or other influence. We also planted a close hedge of sunflowers around our flower beds, thinking to train some running beans, peas, morning glories, etc., on them, but will not try the experiment again, as none of the plants made any growth—hardly came up. We intend to plant hedge rows of the sunflowers through the garden next year, as they make splendid wind-breaks, but will not try to raise anything within at least three feet of the rows. The black-seed sunflowers did best, growing taller and stronger than the Russian. Of two varieties of barley, the Imperial was far ahead, growing taller and stooling heavily. The Saskatchawan Fife wheat will be our main crop until we find something better; out of six varieties of

Spring wheat, none of the others could compare in yield or hardness of grain. Our Soja beans were just getting ready to blossom, Sept. 30th, when frost came. Beauty of Hebron potatoes are good enough for us. I saw a Vermont Seedling yesterday, raised on sod ground, eight inches long, five inches across and nearly two thick; the seed was dropped in furrows and covered by the next furrow. We have planted a few fruit and other trees. Small fruits, etc., all have done nicely. We are building a cellar like one described in the June *American Agriculturist*, but have made some changes in the plan. We are building our barn and poultry house of sods as described in the April *American Agriculturist*, and see no reason why they will not stand a number of years: at least they will be warmer and more comfortable than wood, and will not cost us anything except for the roof, which will be thatched with oat-straw. I wish you would send me some acorns, beech nuts, and other seed you can find in the woods. R. N.

[The writer of this letter evidently is a close observer, and thoroughly interested in his business. He should keep a journal, and after a few years will learn that the results of one summer are not sure guides, while still very useful.—ED.]

The Doctor's Talks.

You have, I doubt not, read descriptions of, and seen pictures of the famous Banyan tree of India. This tree throws out from its branches numerous roots, which grow downwards, and at length reach the ground, where they become fixed. The lower ends of these roots act like other roots, and, branching in the soil, take up nourishment to aid the growth of the tree. These roots, slender at first, soon increase in size, and become like trunks, and help support the great mass of branches and leaves. By the growth of these roots the tree becomes very large. The original trunk decays, and the great canopy of leafy branches is held up by these other trunks, which started as slender roots. A banyan tree is described which has three hundred and fifty trunks as large as ordinary trees, and over three thousand smaller ones.

OYSTERS ON TREES.

Several years ago I told you in these Talks that I had actually gathered oysters from trees. Along the southern coast, in Florida, Louisiana, etc., the Mangrove is found growing on the muddy shores. This acts just like the banyan, on a small scale. Like that, it throws out roots from its branches, and these form a thicket through which few would undertake to pass. Many years ago I went upon an excursion on the Gulf of California, from Guaymas to a seaport where the mangrove lined the shore. The tide rises and falls many

Fig. 1.—SECTION OF PALM TREE.

feet in the gulf, and the stems of the mangroves on the portion covered by water at high tide, were thickly covered with small but delicious oysters.

WHAT HAS THIS TO DO WITH CORN?

The manner of growth of the banyan and the mangrove no doubt seem very wonderful to you: but the very same thing, the same kind of growth, is taking place on your own farm, probably in your own little corn-field. As the corn gets large, you will find that several of the lower joints (or nodes) will produce roots, which, starting at a considerable distance above the ground, grow downwards until they can bury their lower ends in the soil. These roots at length act like other roots, and carry up food for the plant. They have still another use; they soon take a firm hold of the soil, and serve, so to speak, to anchor the plant, and enable it to better resist heavy winds. For this reason, farmers often call them "brace-roots." It was my intention, in talking about corn, to refer to

Fig. 2.—SECTION OF OAK TREE.

other plants also, and I would have you notice that other plants also produce roots from the stems. Roots of this kind are termed "aërial roots." In the banyan, mangrove, and Indian corn, these roots, while serving as supports or props to the plant, also convey food from the soil. In other plants such roots are produced, which never reach the earth, their sole purpose being to aid the plant in climbing. The very poisonous vine known as Poison Ivy, Poison Oak, and in some places as "Mercury," has two forms—one grows along fences and walls, and the other clings to the trunks and climbs to the tops even of tall trees. You need not handle this vine (which is to some persons very poisonous) in order to see what a multitude of short roots is produced along the stem. These cling to the tree-trunks, fences, etc., and hold the vine very firmly fastened to them. You can see the same thing in the Trumpet Creeper, and the European Ivy, both of which are often cultivated.

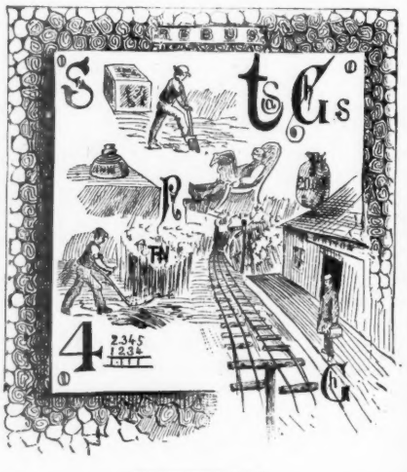
CORN STALKS AND TREE TRUNKS.

You will recollect that in a former Talk, I called your attention to the joints or nodes of the stalk of the corn. These are marked by a slight swelling, and the place is marked by a distinct ring. This gives the stem a very different appearance from that of ordinary trees and shrubs. I have also asked you to compare the leaves of corn with other leaves. Now how is it with the inside of the stem? If you cut a corn stalk across, you will see, if you examine the cut surface closely, a mass of pulp, which later, when the corn is ripe, will appear like pith, through which are scattered little dots. These dots are the ends of what will be seen to be, if you cut lengthwise, woody fibres which run through the pulp or pith, and are scattered irregularly. If you cut the stem of a sunflower, or that of the Pokeweed (Pigeonberry) or other large annual plant that has netted-veined leaves, it will show a very different appearance. These will have the pulp or pith in the center, and the fibres, which in the corn are scattered, arranged in a ring around it, and outside of this a bark. Now these two stems, the corn stalk and the sunflower, illustrate the two great divisions in which all flowering plants are placed. The corn has a stem such as I have described, and leaves with parallel veins, and the embryo in the seed has but one seed-leaf. The sunflower has, besides the stem just described, leaves with netted veins, and its embryo has two seed-leaves, as you can also see plainly in squashes, beans, etc., when they first come up. Now I must ask you to remember two rather long words, that are used for these two great divisions of flowering plants. You have been told that the name for a seed-leaf is Cotyledon. A plant, the embryo of which has but one seed-leaf, is said to be Mono-cotyledonous. These differences in stems are seen more strikingly in woody stems or trees, which live from year to year. Thus the palm (fig. 1), shows, when cut across, an appearance similar to that of the corn stalk, the fibres being scattered through it, the newest being added in the center. The stem of any of our northern trees, an oak, for example, has the appearance shown in figure 2. The pith is in the center, and the fibre in rings around it, a new ring being added each year, outside of the old ones. Plants in which, like the oak, the new growth is formed outside of the old, are exogens, or "outside growers." Those in which the newest growth is in the center, as in the palms, are called endogens, or "inside growers." These terms correspond to dicotyledonous, and monocotyledonous.

Camping Out.

This is the time of year, from July to October inclusive, when, if ever, young, and old folks too, may go to the woods and mountains for an airing, for health, or for flowers, fish and fun. It is rare fun even for country boys (and the girls need not be excluded), to do this sort of thing, for they have new experiences of life, and a kind of romance, which the farm and village, and certainly the town, does not furnish. The gain in healthful recreation, in knowledge of natural history, and in a sort of useful independence, is immense. All of which we value highly for our own boys, and which we enjoy even now most highly for ourselves. The place for camping should be dry, healthful, above all flats, and at some distance from swamps; not in dense woods, but in some pleasant opening, near to good water—a spring if possible—away from near neighbors, possibly in wild forest country, or near a mountain lake or stream, or by the sea. The rockier it is the better, and there should be dry, dead wood, or handy stuff to burn, in abundance. Now, what to take. If spruce or hemlock boughs are plenty, a good shelter can be made of them; if not, a piece of strong cotton or canvass, eight feet by twelve, well sewed, and with eyelet holes in the corners, and two in each short side besides, to take tent ropes, all strongly made, will serve the purpose. The ropes must be about ten feet long each; hence one hundred feet of half-inch manila, or other good rope is requisite. This it will be well to boil in a pot of water, and when dry, stretch. Then it will not kink. A tent pole ten feet long, and crotched sticks to support it, seven feet long to the crotches, may be cut on the ground probably, if not, must be provided. Of course, a good light axe or hatchet is essential. The mother will see that necessary food and cooking utensils are packed in a small compass. Thus equipped, and with rubber coats and blankets, a week or a month in the woods may well be spent with great pleasure and profit.

Illustrated Rebus.



Solution of Rebuses.—In the June number two rebuses were given, the solutions of which are from the writings of Thomas Jefferson. They are: 1. "Nothing is troublesome that we do willingly." 2. "Never buy what you do not want because it is cheap; it will be dear in the end."

Mushrooms—Open Air Culture.

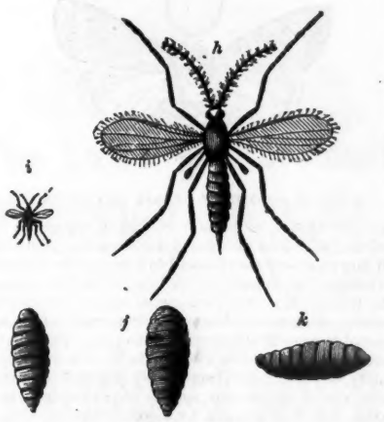
In this country, very few mushrooms are consumed, as compared with England, or other European countries. During September and October, the markets are sparingly supplied with mushrooms, gathered from the pastures, where they grow wild. For the remainder of the year, only those cultivated under glass are to be had, at prices which restrict their use to the wealthy. In England, mushrooms are produced in large quantities by beds made in the open air, and are regarded as the most profitable crop raised by the market gardener. The climate in England allows mushrooms to be grown all the year round, but the heat of our summer months, and the severity of our winters, essentially curtail the time during which

MUSHROOM BED.

mushrooms can be cultivated out of doors. There is no doubt that with us, beds would be productive during the months in which wild mushrooms are abundant, and probably they could be grown in the spring months also. To those who would experiment with mushroom growing in the open ground, we give an outline of the method followed by English market gardeners. To make the bed, manure from horse stables is needed. The long litter is forked out, and laid aside to cover the bed later, and the remainder, consisting of equal parts, more or less, of solid droppings and short litter, such as one would use for a hot-bed, is made into a heap. If too dry for fermentation to go on, the manure is to be watered. If there is not enough litter with the droppings, leaves collected the previous autumn are added, to make the mixture of about equal parts. In four to six days the heap is turned, making another heap, placing the manure, etc., that was on the outside, at the interior of the new heap. The heap after this has from four to six turnings on alternate days, to bring all into an even state of fermentation. The bed or beds should be made where the water drains from the surface, and it is desirable that a fence or building should break the force of prevailing winds. The beds are made two and a half feet wide at base, six inches wide at top, two and a half feet high, and of any convenient length. In making the bed, sticks set in the ground are used as guides. The manure is laid on evenly; as it is piled up, it should be beaten with the forks, and when eighteen inches high, should be trodden down firmly. When the ridge is three feet high, beat and tread it down to two feet; then add the remaining six inches, beating it very firmly with the fork. The bed should be made in a neat and workman-like manner; after it is built, and its temperature, an inch below the surface, is eighty degrees, it is to be spawned. Spawn is sold at the principal seed stores, in the form of large and thin bricks. A brick is broken into about eight pieces; these pieces are thrust into the bed about nine inches apart, the manure of the bed being held up with the left hand, while the piece of spawn is forced in with the right. When the spawn is inserted, the bed will appear as in the figure. The spawn, if good, will commence to "run" in about three days, when the bed is to be covered with soil, or "cased." Good unmanured soil is required, such as that from a pasture. This is covered all over the bed, from an inch to two inches thick, according to the stiffness of the soil. The mushrooms break up through the covering of soil from below. To retain its heat, the bed must be covered, using the coarse litter separated from the manure for the purpose, and other straw, if needed, the covering varying in thickness from six inches to two feet, according to the temperature.

The Hessians on the Pacific Slope.

Cultivators on the Pacific coast, have heretofore been almost free from the insect pests that cause such great loss to their brethren in the eastern and older portions of the country. One by one we hear of the appearance of this or that destructive insect in that favored section. As the means of communication are multiplied, so are the opportunities increased for the introduction of troublesome weeds and injurious insects. The broad wheat fields of California, Oregon and Washington Territory, have heretofore been free from the Hessian Fly, which has been so abundant in some Eastern localities, as to cause wheat culture to be abandoned. Now that it is an established fact that the Hessian Fly has appeared in various localities on the Pacific coast, every wheat grower there will be interested in knowing something about the insect and its ways. To place this information before our many readers in that portion of the country, we give herewith an engraving of the Hessian Fly in its different states. The entomologists' name for the Hessian Fly is *Cecidomya descructor*, which being very freely rendered, means "a destructive insect that produces small galls"—some other species of Cecidomya making gall-like excrescences. The perfect insect, shown in the engraving, of the real size, at *i*, and much enlarged at *h*, has a spread of wings of only about one-fourth of an inch. The head and upper part of the body are black, the hinder part of the body is tawny, the wings are blackish, and the legs brownish or pale red, with black feet. The insect deposits its eggs on the leaves of the young wheat plant in September, but the difference in the seasons on the Pacific slope, will no doubt vary the time. As soon as hatched, the young maggots make their way down between the



HESSIAN FLY.

wheat stem and the sheath of the leaf which surrounds it, to the joint in the stem, where they suck away at the juices of the plant, and grow rapidly. In about six weeks the maggots are full-grown, and appear as in *j* and *k*, both magnified. From their size and color, the maggots when full-grown are said to be in the "flax-seed state." They then go into the chrysalis state, in which they pass the winter, and appear as perfect insects in spring, to lay their eggs for a second brood. By this time the wheat plant has grown considerably, and the eggs at this time are laid so that the maggots will reach the second and third joints of the stem. A maggot or two at the joint of the stem causes no apparent injury, but where several are sucking at one joint, the upper part of the stem weakens and soon dies. The remedies are of less value than preventives. By a proper rotation of crops, by sowing late, and by selecting varieties with a hard, stiff stalk, and which tiller abundantly, much may be done to prevent great damage to the wheat crop.

Small vs. Large Farms.

D. D. T. MOORE.

Though much is heard concerning the great bonanza wheat farms of the Northwest, and the vast cattle and sheep ranches of the West and Southwest, it is a notable and gratifying fact that the farms of the whole country, while increasing in number, are diminishing in size annually. From the last census, a trustworthy authority, it appears that the number of farms increased from two million, six hundred and sixty thousand in 1870 to four million in 1880, or at the enormous rate of fifty-one per cent, albeit the advance of our population was only thirty per cent during the same period. And the number of small farms has undoubtedly continued to increase largely since the census figures were taken, though perhaps at a less ratio than during the decade ending with 1880—for, very fortunately for both the people and the country, the tendency is to divide large plantations in the South, and to sell in small tracts such lands as were bought on speculation in the West and Southwest, and on the Pacific coast. The homestead and timber claims being continuously taken up by settlers upon government lands, must add largely to the number of small farms annually put under cultivation, while the division of comparatively large farms into lesser ones, which is constantly going on in most of the Middle and some of the Western States, must materially increase the aggregate, so that the proportion of small to large farms is continually and rapidly augmenting.

Having referred to the extraordinary increase made in the number of farms between 1870 and 1880, it may be of interest to specify where that increase occurred, as showing the sections of country which are growing most rapidly, and exhibiting the greatest progress in our leading industry—agriculture. For example, the census shows the increase of farms above named to have been one hundred and two per cent in Alabama, ninety-one in Arkansas, one hundred and twenty-nine in Florida, ninety-eight in Georgia, seventy in Louisiana, fifty in Mississippi, sixty-eight in North Carolina, sixty in Virginia, one hundred and eighty-five in Texas, and large in some other Southern States. This increase of farms in the South is mainly attributable to the fact, that numerous plantations have been divided into small tracts, and rented or sold to freedmen, the immigration to that region being comparatively limited. The figures are most significant, demonstrating the great progress and improvement made by the rural population of the South and Southwest, especially in dividing large plantations into small farms, after the depression which followed the War for the Union had been overcome. They show the wonderful powers of recuperation possessed by the Southern people.

But the increase of farms during the decade mentioned in the North, and notably in the West and on the Pacific Coast, was even more wonderful than that in the South: for Iowa made an advance of fifty-nine per cent, Minnesota of ninety-nine, Nebraska of four hundred and fifteen, Oregon of one hundred and fourteen, and California of fifty-one. These figures are astonishing: yet the most marvelous multiplication occurred in the territories, where the rate of increase ranged from ninety-eight per cent in Montana to upward

of nine hundred per cent in Dakota. The wonderful increase in the Western States and Territories was unquestionably owing to the rapid settlement of that part of the country by immigrants and others, who either located homesteads, or bought small tracts from the Government, or extensive land owners.

Our original purpose, however, was to discuss the superiority and desirability of small over large farms, rather than their number—to demonstrate that a limited area thoroughly cultivated, is by far the most profitable. Many forcible and conclusive reasons can be adduced in support of this position, but as their presentation would exceed the space allotted for this article, we are obliged to defer further discussion of the subject until another month.

Forty-two and One-Half Bushels of Potatoes from One Pound of Seed!

"Do we believe it?" Certainly. A prize was offered for the largest yield of potatoes from a single pound, of a particular variety of potato, manured with a particular brand of commercial fertilizer. It is a good way of calling attention to this variety of potato and this brand of fertilizer. What other benefit it is to any one it is difficult to understand. The one pound of potatoes, by means well known to gardeners and propagators, afforded, as the successful competitor tells us, "sets enough for over two hundred hills."

The land was a clover sod, manured previous to plowing. It was a sandy loam in high condition. Holes were dug by hand for the plants, or sets, into each of which one quart of a mixture of superphosphate, plaster and hen manure was dropped. The holes, or hills, were four feet apart. The plants were set out May 17th. During June and July they were watered ten times. Thirty-five barrels of water were used. Each barrel contained eight quarts of sheep manure and four quarts of the commercial fertilizer. And in addition to this, two hundred pounds of the fertilizer were scattered in and around the hills, before hoeing the last time.

In other words then, two hundred hills, occupying one thirteenth part of an acre, received over sixty-six quarts of fertilizer to start with, one hundred and forty quarts in the water, and two hundred pounds scattered around the hills at the last hoeing. In fact, something like four tons of this commercial fertilizer was applied per acre, besides hen manure, sheep manure, plaster, clover sod, and barn yard manure!

Now, what was the yield? There were over two hundred hills. How much over we are not told. If there were just two hundred hills and four feet apart each way, and these two hundred hills produced forty-two and one-half bushels, the yield was at the rate of five hundred and fifty-four bushels per acre. If there were three hundred hills, the yield was at the rate of three hundred and eighty-one bushels per acre. Probably there were over two hundred and under three hundred hills, and the yield is somewhere between the above figures. But even supposing the yield to have been five hundred and fifty-four bushels per acre, what is the use of such "experiments?" They make a scientific man blush, and a practical man laugh. In the *American Agriculturist* for February, 1874, page 55, we showed the folly of offering such prizes for the largest yield from a pound of seed, and killed the thing for about ten years. We are sorry to see it revived. It is childish business. Look at this so-called experiment. Does it show that the variety of potato has any special merit? Does it show that any particular soil, or method of planting or cultivation is good or bad? Does it throw any light on the special requirements of the potato plant? Does it even prove that the commercial fertilizer, so extravagantly used, has any particular merit? Does it prove anything except the profundity of human folly? It is an insult to farmers to think that they can be so easily gulled. Much of the so-called "experimenting" is of no more real value than this with the potatoes. Let us have no more of it.

The New Strawberry Pest—The Weevil.

It is announced by the daily press, that Prof. Riley, Entomologist of the U. S. Department of Agriculture, Washington, D. C., is to visit Staten Island and inspect the strawberry beds, which are devastated by a new insect pest. The insect is the one of which we gave an engraving and description last year (August, 1884, p. 323), and has since greatly increased in numbers. The strawberry growers of Michigan have been annoyed by the same insect, and cultivators elsewhere have reason to be on the look-out for it. In view of its importance, we reproduce the engraving, which gives the insect much enlarged, the real size being shown by the line at the right. The scientific name of the insect is *Anthonomus musculus*; it is popularly known as the Strawberry Weevil. It is closely related to the Plum Weevil, or *Curculio*. The Strawberry Weevil feeds upon the flowers of the strawberry, and also pierces the stalks, just below the flower clusters, causing them to break off with the young berries, and thus the crop is lost. Mr. S. G. Winant, of Staten Island, who first brought this insect to our notice last year, now writes us, that the weevil scarcely troubles those kinds of strawberries which have pistillate flowers. While the Sharpless shows hardly a flower, the Jersey Queen and other pistillate kinds, in the same field, are but little disturbed. This immunity of the pistillate varieties may be due to the fact that the insect is fond of pollen, and avoids the flowers which do not furnish it. We are glad that the habits of this insect are to be studied, and trust that it may lead to the suggestion of some effective remedy. The weevil will very probably spread, and strawberry growers should be on the watch for its first appearance. Hand-picking a few weevils, when they are first seen upon the flowers, may save much trouble. The insect is no imported enemy, but native, which has only recently invaded cultivated grounds. As in other cases, finding an abundance of food to its liking, the insect will no doubt increase with a rapidity heretofore unknown to it.

STRAWBERRY WEEVIL.

Havoc Among Orange County Onions.

Orange County, N. Y., formerly so noted for its dairy products, has of late years become an important centre of onion culture. The soil being especially well suited to the onion, and the locality remarkably free from insect and other enemies, those who have engaged in the growing of onions have found the crop very profitable. Of late an enemy has appeared in force, which threatens to destroy the onions, and the profits of the farmers. Mr. Rudolph Rosenthal, who grows onions extensively, recently sent us specimens of a "worm," which has proved to be sadly destructive to the crop. The worms were too young to allow them to be identified with certainty, but their general appearance indicated that they were one of the several species of cut-worms, a view which was strengthened by learning that they were known to work only at night, and that they cut off the onion plants just at the surface of the ground. There are a dozen or more different species of cut-worms, some of which are climbers, and cause great loss to fruit-growers by destroying the fruit-buds of the trees. In their "worm," or caterpillar state, they are nearly all dark-colored and greasy-looking. They are, when full-grown, about an inch and a half long, and when disturbed, curl up, to form almost a complete ring. They are the larval or caterpillar state of several different night-flying Owlet, or Rustic Moths. The moths are all of a dark gray, or brown color, and when at rest, fold their wings against the body, the upper pair covering and concealing the lower.

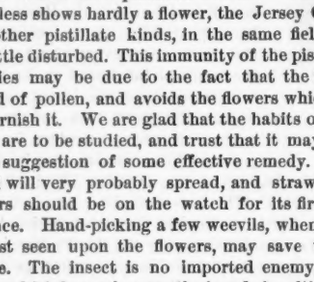


Fig. 1.—MOTH OF GREASY CUT-WORM.

To give the general appearance of the larval and perfect states of these insects, we present engravings of the moth and the caterpillar of the Greasy Cut-worm (*Agrotis telifera*). This is, perhaps, the most widely distributed of all the cut-worms, as it is found in nearly every state. It is also a very general feeder, and is injurious to many crops, even including tobacco. So far as could be judged from the young caterpillars, the one so destructive to the onions in Orange County appears to be of the species figured. As the habits of these insects are so much alike, it is not of great importance to know precisely to which species the present pest belongs. The worms make a hole in the ground, to which they retire in the early morning, where they remain quiet during the day. At night they issue forth on their work of destruction, and those which do not climb, cut off young and tender plants, just at the surface of the soil. They feed upon the plant, and often drag pieces of the leaves to their burrows, which leads to their detection. Upon inquiring what had been done to check the insect in its destructive work, we learned that plaster, lime, salt, ashes, Paris green, and a secret poisonous preparation called "Slug-shot," had been used with but little or no perceptible effect. The most effective method was to collect the worms at night and kill them. This, where the area is several acres, is an almost hopeless task. We learned that all the above named articles had been applied to the soil, rather than to the insects. In treating insects with arsenical poisons, like Paris green and London purple, the insect must eat the poison: unless it be taken into the system of the insect, it will have little, if any effect; but if a very small particle is eaten, death soon follows. Doct. A. Oemler, of Georgia, author of "Truck Farming for the South," (published by the O. Judd Co.), appears to have successfully mastered the cut-worms. Before setting out cabbages, or planting water-melons, cucumbers, etc., he first clears the field of cut-worms. After the land is prepared for the crop, he places turnip or cabbage leaves, fifteen or twenty feet apart, each way, all over the field. These leaves are first moistened, and then dusted on one surface with a mixture of one part of Paris green and twenty parts of flour. The leaves are distributed over the field, with the poisoned surface downward. The operation is repeated after three or four days, two applications being usually sufficient. This method has been found most successful, and crops, which formerly failed, are now raised with little trouble from cut worms. Whether the land intended for onions could be successfully cleared in this manner from the cut-worms in time to allow the onion seed to be sown sufficiently early, can only be ascertained by trial. Still, we should expect good results from placing the poisoned leaves between the rows of onions. At all events, we advise that a trial be made. The female insect deposits her eggs in early spring upon plants, even upon trees; the young worms, as soon as hatched, make their way to the ground, into which they burrow, coming out at night in search of food. If the onion ground be kept fallow for one season, it is quite sure to be free from cut-worms, and this, in the Northern States, where a fallow is not so injurious to the fertility of the soil as at the South, may be the most ready method of avoiding the cut-worms. Another method, which is practicable on a bed, if not on a large field, is to cover the surface with a thick mulch of litter of some kind, and burn it off. This will effectually destroy cut-worms, and all other burrowing insects. We ask our Orange County friends to report to us what success has attended their adoption of either of these suggestions, to prevent the ravages of cut-worms.

Fig. 2.
GREASY CUT-WORM.

A SINGULAR CASE.—Subscriber, Exeter, Neb., says he found on killing some sick fowls, a sac attached to the gizzard, as large as an egg, which was filled with undigested food. Everything else was all right. This is a case analogous to the impacted maniple or third stomach, which destroys so many cattle fed on dry food to excess. The gizzard, in birds, represents the third stomach of cattle, and the office of each is to grind or rub up the food into fine pulp, which can be easily digested. When the animals are gorged with food, the stomach is overworked, and stops operating, and the food gathers there, causing sickness nearly always fatal. These fowls were over-fed, and the gizzard could not dispose of the food, which collected and forced itself into this sac, which was an extension of the muscular coat of the gizzard. The means of prevention are obvious. There could be no cure.

SEE PAGES 307, 308 and 309 FOR HUMBUG AND OTHER MATTER OF UNUSUAL INTEREST.

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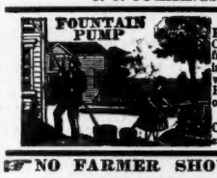

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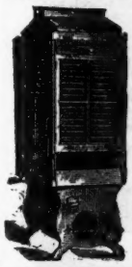
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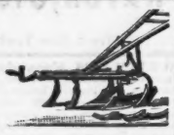

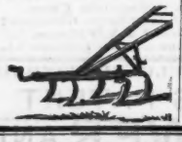

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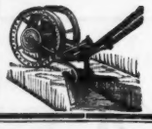

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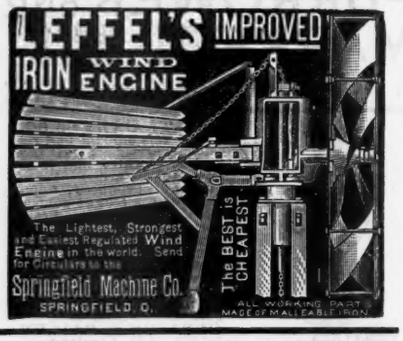
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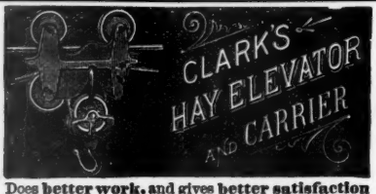

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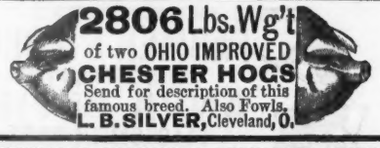

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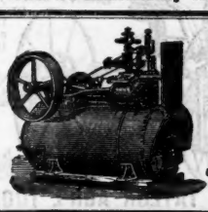

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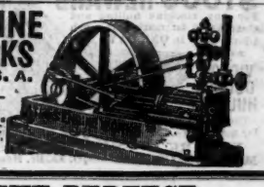

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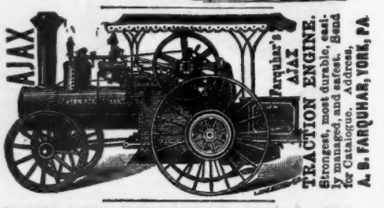

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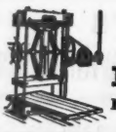

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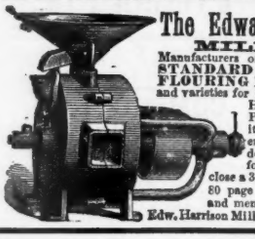

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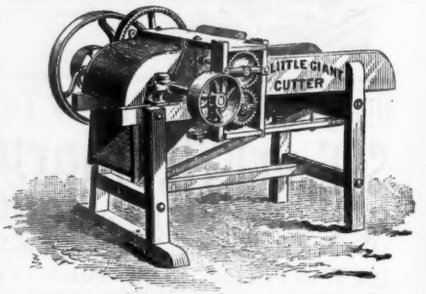


The **Heaviest, Strongest,** and **Best Cutters** in the **World.** Adapted to all kinds of powers, and have immense capacities. Order early for Ensilage purposes. Illustrated circular sent free to any address.
E. W. ROSS & CO., Springfield, Ohio.

Never employ a physician who advertises his cures, or anything beyond the fact that he is a physician.

If you come to New York from the rural districts and go down to Coney Island, be very sure to keep your eyes and ears open—be sure to steer clear of all strangers who may seek to interest you in various games of chance, which are practiced upon the unwary.

The Sackett Plow Victims.

More Sackett plow victims have reported since the June issue of the *American Agriculturist*. One, a former employe of this concern, put a thousand dollars in this festive enterprise, which apparently was manipulated simply for the purpose of wringing money out of poor ministers, clerks, book-keepers, farmers, and unsuspecting people generally. One of the latest victims we hear of, is a poor widow who writes that this Sackett plow stock was actually forced upon her. The matter is now being thoroughly overhauled and sifted.

"Let Our Correspondence Be Strictly Private."

Mr. Frank P. Merritt, of Essex County, Mass., has received a very confidential letter from John Stark, of Sharon Grove, Ky., informing him that he would like to have him act as agent for "a kind of bills that I wish to introduce in your locality." Stark will furnish him with gold or greenbacks, and wishes Mr. Merritt to return his letter if he will not act—"and let our correspondence be strictly private." The best thing Mr. Merritt can do, is to turn Mr. J. Stark over to the United States authorities. All other parties throughout the United States receiving letters from this precious scamp, should send them at once to the general Post Office Department at Washington.

"Mutual Friends."

Mr. Richard N. Allen, of Ellis County, Texas, forwards us a "private letter," which he has received from "Wainscott & Davis, dealers in general sporting goods," at New Carlisle, Ind., informing him that for the extremely low price of five dollars per one hundred dollars, they will furnish him with money "which you cannot detect." Furthermore, they will furnish large orders C. O. D., if he will send them one dollar in advance, "as a guarantee of good faith." How Mr. Allen's name was secured, these sporting gentlemen thus inform him. We quote the first paragraph of their letter: "Your name was given to us by one of our *mutual friends*, and with great confidence we write you this letter, and trust you will give it your prompt care." No such firm as Wainscott & Davis is given by our mercantile agency as at New Carlisle. United States authorities would do well, however, to hunt up this precious pair of rascals, who, Mr. Allen writes, "thought to trap me."

Plenty of Aliases—"A Friend to a Friend."

Mr. N. E. Farrell, of Alachua County, Florida, another correspondent at Tampa, Florida, another at Allegan Mich., and others elsewhere, all forward us duplicate copies of a letter sent from this city, asking them to act as agents to "handle my goods." The letter goes on to say: "My business is not exactly a legitimate one, but the articles I deal in are safe and profitable to handle. Do you understand? I can not be plain until I know you mean business. I will endeavor to satisfy you on every point, and if you are my friend, I will prove myself a true and lasting one to you, be the trade for one dollar, or a thousand. I want simply to convince you that I am just as I tell you, a friend to a friend. When you write, be sure you return this letter, and then I will have confidence in you. *Never send a registered letter*, and be sure you send me your correct name." This precious document, which in every case reads exactly the same, has a different signature in every case. For example, one of the letters is signed H. A. Thomas, care of a certain address, in 6th avenue, New York; another is signed T. J. Halpin; a third is signed by a third name, and gives an address in Division Street, New York. All of these letters undoubtedly eminate from one and the same scoundrel, who doubtless has a private letter box in the city, and whose communications ought to show to our readers at a glance, that his residence should permanently be in Sing Sing, and not in New York City.

A Swindler Brought to Bay.

E. S. Mayo, one of the Chicago newspaper swindlers, who has been under arrest, and is now plying new schemes for swindling the unsuspecting public, was made to disgorge in a decidedly vigorous manner in Chicago not long ago, by a friend of the *American Agriculturist*. This gentleman called at Mayo's "office" for fifteen dollars due him. Mayo refused to pay, and said to the gentleman, "Why don't you sue me?" The gentleman responded instanter, "Sue a beggar and catch a louse," to which Mayo responded, "I want you to go out of this place instantly." The gentleman responded, "I will get out of this place when you pay me fifteen dollars, which you owe me." It is needless to say that the money was forthcoming at the time specified. Our advice to all subscribers and friends who have been duped and swindled east or west, is to go vigorously for the party who has obtained their money. You can always rely upon it that the professional swindler is a coward, just as much as the man who attacks you in an anonymous circular. When you have been swindled, do not hesitate to move vigorously upon the rascal who has victimized you, and you can generally recover a portion, if not all, of your money—but act vigorously.

Churchill's Restorative Remedies.

This is one of the "free prescription" dodges. Inman and some others give prescriptions, calling for articles which have no existence under the names given for them. This Churchill nonsense gives a prescription for articles which can be procured in any decent drug store. After the articles are procured, if one attempts to follow the directions given in the "Method of Preparation," he will find that he cannot do it, and that no apothecary can help him. This is where the trick comes in. No one can follow the nonsensical directions given in this bogus mode of preparation: but the considerate advertisers state that they will supply the stuff, ready-made, at a particular price—and a good round one, at that.

Joint Stock Live Stock Companies.

A printed circular comes to us from bankers, who forget to sign their names, calling attention in a prospectus to "a good investment for surplus funds." They don't mean this exactly; but the prospectus sets this little mistake right, for it describes a ranch in the Black Hills, in Dakota, that is prospectively;—at present it is only in the land of imagination. The bankers want to start with a capital of five hundred thousand dollars, in twenty thousand shares of twenty-five dollars each, and if you do not hurry up, you will be too late, for the "stock" will all be gone (and if you do hurry up it will all be gone too). But what pretty figures the bankers give. They buy forty thousand calves at ten dollars each, costing four hundred thousand dollars. At the end of three years they will have twenty thousand three year old cows, at twenty-five dollars each, twenty thousand three year old steers, worth forty dollars each, and thirty-two thousand yearlings and calves, worth an average of fifteen dollars each, in all, one million, seven hundred and eighty thousand dollars. Forty per cent yearly dividends, and a big surplus are promised. Is it not a lovely thing—on paper? And all done by bankers, too, who make no charge for their services. Now we do not say these bankers who do business in a little town in Missouri are swindlers, but we are sure they have a remarkably promising business in hand, which is so good that we really wonder how they can be so generous as to divide it with strangers, for whom they liberally offer to do the business for nothing. "First come, first served. In these times every one wants to make money. Here is your chance." With these words, so very unlike the business ways of real bankers, "Yours Respectfully," end their grand offer, and don't you forget it; the "stock" will no doubt all be gone very soon anyhow.

Washington Street, Boston.

There is an American Co-operative Dairymen's Association on Washington St., Boston, with a charter brought all the way from West Virginia, and also a National Loan and Trust Company, whose business seems to have been to recommend the A. C. D. A. as being "good for a small amount," while the A. C. D. A.'s business was to advertise for consignments of produce, and never pay for them. There is also an Empire Manufacturing Co., whose circular has been sent to us. This pink circular makes a very nice offer. If you send two dollars, you will get in return four pieces of velvet, and four designs, and when you return the velvet with the designs transferred to them, you get one dollar for each of them. In this way you can earn thirty dollars a week. This is very kind of these good people. They will even take Canada money at its face value, pay all express charges, and give every applicant full employment, as well as pay cash on delivery. Can you ask for more than that? Yes, you might ask that these people tell the truth. But when they say on the pink circular, "there is no duty on our goods for Canada," they do not agree with the official schedule of the Canadian custom house, which gives the duty on velvets as twenty per cent in cotton, and thirty per cent in silk; and we know one who lies about one thing, will lie about another.

A Novel Enterprise,

but an old game, is that of the poultry fraud, who hails from Zanesville, Ohio, and who appears under the various guises of a widow with a fatherless family, a young girl, a decrepit old man, and an enterprising youth. But under whatever guise the swindler says he sent ten cents to some party in Zanesville, or some other place, and got directions for making an incubator, which, when complete, held two hundred and fifty eggs and cost seven dollars. There were seven hundred and forty-one chicks hatched, and six hundred and eighty-four reared, and four hundred and twenty-six dollars and sixty cents profit realized. Of course, the figures are varied each year, for this is a humbug, which appears with the spring and early summer, and returns with the season annually with great regularity. When one sends ten cents to the party, he receives a circular, in which he is informed, that a plan of the incubator will be sent for two dollars. Enquiries at the post-office in previous years have shown, that thousands of letters have been sent to this "Bain"-ful rascal, who always writes under the name of some imaginary woman. This year it is Mrs. S. W. B. Usually the advertisement is a free one in the form of a communication from a subscriber to the paper in which it appears, and thus seems to have the endorsement of the editor.

Millions in It.

F. H. F. & Co., a banking firm in Columbia City, Ind., forward us a letter received from the Office of the *Principal and Dividend Security Co. of New York: John E. Wheeler, President*. These bonds of fifty and one hundred dollars each, we are informed in this letter, are, to quote, "for the accommodation of small investors or parties of limited means, whereby they can realize as large a dividend in proportion to the amount invested as the capital." How philanthropic and accommodating. Furthermore, "each bond has *twelve dividend* coupons attached, and each coupon of the fifty dollar bond entitles the holder to a dividend of one hundred dollars per month, and of each one hundred dollar bond to two hundred dollars per month. The dividends commence with your subscription to the bond." But this is not all that this wonderful Principal and Dividend Security Co. offers to do in these hard times, when it is difficult to command four per cent a year for your money. In addition to paying two hundred per cent interest a month, President Wheeler's philanthropic company gives you this extra privilege thrown in. We quote: "Should you at any time desire to convert the bonds held by you *into cash*, you can do so by sending them to the office of the company, or by depositing them in any bank for collection, as the company is *always prepared* to pay the principal of these bonds on demand."

We looked into the directory, but could find no name of John E. Wheeler; then we looked into our mercantile agencies, and could find no ratings for any such man, then we called at 51 New street, but could find no sign of any such office as the *Principal and Dividend Security Co.* The elevator man told us, however, that if we would proceed to room 15, we could discover Mr. John E. Wheeler, who would give us all the information about the company. We found Mr. Wheeler very willing to talk. When we asked him who was responsible for the payment of the bonds, he replied that he was President of the company and responsible, as his name was signed to the bonds. Then when we asked how he could afford to pay such a high rate of interest when money was so plenty, he replied, "It is not interest, but a dividend paid out of purchases of stocks by the company to each bondholder, and the money could be returned at the pleasure of the holder at any time." We left President Wheeler, convinced that his financial erudition was altogether too profound for us. We shall strictly adhere to the suggestion of F. H. F. & Co., the Columbia City, Ind., bankers, to wit: "Do not send us any of the bonds until further orders." Our readers will act accordingly.

The Cinnamon Bean.

There is nothing old, and nothing new. The old cinnamon bean humbug is a new thing again. The vender of these "curiosities" is again around, and we hear of him from the west and the south, gathering in dollars from the ignorant and unwary. Common English horse-beans, rare enough in this country however, are dipped in oil of cinnamon, and sold as the seed of a rare Mexican plant of wonderful odor. Five dollars a package has been taken from enthusiastic amateur "horticulturists" for these beans. When the purchaser finds it out, he will be apt "to know beans" a little better than ever before, and the next time a glib-tongued vender comes around, he will find a less willing buyer.

Quack! Quack! Quack!

We have been interviewing a few quack doctors to see what is new. One "doctor" has a certain cure for consumption. He gives you a bottle of the stuff for nothing. The medicine contains nothing injurious; that we can vouch for, any way, unless water, a little raspberry syrup and some simple bitter can hurt any one. It is put up in small bottles for four dollars each. On the chance of selling a few bottles to some deluded, perhaps hopeless sufferer, whose friends will try anything as a last resource, he can well afford to give away five cents' worth of stuff and send it free by express. There are more of the same kind, but this is a sample. Never employ any doctor who advertises. That is a safe rule. Respectable physicians avoid such a practice, which is a sure indication of quackery.

"All that Glisters Is Not Gold,"

or silver either. The silver mining craze is not yet over, nor will it be until all the rascals are dead, and the fool killer has gone out of business for want of material to work on. All the honest silver mining companies, which are paying dividends now, can be counted on the fingers; the rest of the lot are of the "wild cat" kind, which are got up by sharpers who live by their wits, upon the earnings of hard-working people, who are not wise enough to take care of their money. Take care of all these too promising schemes and avoid them.

The Chicago Plan.

The "Editor and Business Manager" as "John Doe."

From time to time we have published the evidence in the shape of letters from our subscribers, showing that our missing Subscription Lists were being used in Chicago. The conclusive proofs are now in our possession.

We have likewise alluded to the anonymous circulars of every description forwarded from Chicago to our subscribers, with such statements and representations as should lead them, if possible, to drop the *American Agriculturist*.

Last month we published a circular letter, which our canvassers are receiving from Chicago, inviting their aid and co-operation, and making most dishonorable proposals to them.

Not satisfied with "appropriating" our subscription lists, sending anonymous circulars to our subscribers, and attempting to draw away our canvassers, the originator of these schemes has, as will appear below, gone still further, and attempted to break up the editorial staff of the *American Agriculturist*.

The following remarkable communication, written with the type-writer, marked "strictly private and confidential," enclosed in an envelope post-marked Chicago, and received by one of the long-time editors of the *American Agriculturist*, explains its infamous purpose at a glance.

"I am embarrassed in even attempting to address you. I have avoided it partly on your account, so that you might *be able to say* you had no word from me. I should not write this, but for a letter from one *now employed* at 751....I have in my possession *an affidavit* that last February a man at 751 was ordered to *dismiss you*, and, furthermore, that '—— did not earn his salt.' The response was, 'Do your own work; you are manager.' But I must suffer a good deal to use this; I hope I shall not be compelled to... If you have anything *to* say that I may know, *write it to John Doe*, and enclose it to *my care*. I do not want to put you in a position where you have to be asked if you have corresponded with any one....I often wish that you were with me!!!....This is strictly private, and I insist that it shall be returned to me immediately, as I have a right to ask. JOHN DOE."

The gentleman receiving this communication, handed it over to the Publishers of the *American Agriculturist*. Subsequently the Trustees of this Company, having placed an appropriate endorsement upon the back, remailed a duplicate to the author at Chicago, retaining the original.

Sweeping Censure.

Dr. Loring was not our choice for Commissioner of Agriculture. We do not, however, credit the sweeping assertions now being made as to extravagant expenditures on his part. We believe that, whatever he did, he did with the best of motives, although he may not at times have acted with the best judgment. The wholesale denunciation of our public officials, especially after they have retired to privacy, is not calculated to encourage our best men to leave private life for public life. Commissioner Colman, we are sure, does not in the least sympathize with these assaults upon his predecessor.

Furthermore, we do not believe the direct charges made by the Philadelphia "Times" newspaper, that Professor Atwater was sent abroad on a mere junketing expedition at the expense of the government, without accomplishing anything. He has explicitly denied the charge that he was implicated in the disreputable Postal Card Album business. We shall now be only too glad to place our columns at his disposal, to deny the junketing story, and likewise to deny another insinuation to the effect that he is a contributor to the "P. F." and "Family Doctor," under the nom de plume of "J. S. J."

Our Special Summer Premiums.

Our Simple Microscope.

This Microscope, manufactured expressly for us, after our own designs and patterns, proves to be one of the most popular premiums we have ever offered for subscribers. Now in the summer months, a Microscope is of especial value to farmers, excursionists, entomologists and those generally, who are spending the season in the country. Any person now a subscriber to the *American Agriculturist*, can have one of our invaluable Microscopes, delivered post-paid, for $1.25. We will present one of these Microscopes, delivered free, with the *American Agriculturist*, post-paid, to any new subscriber for 1885, for $2.00.

The Weeden Upright Steam Engine.

Boys! over seven hundred of your comrades have earned or purchased outright this attractive premium, so fully described in the February number of the *American Agriculturist*, page 84, and likewise in the last edition of the Premium List. Any one of you, who sends us forthwith two new subscriptions at $1.50 each, will receive this engine, post-paid, in a wooden box specially made for the purpose; or we will send you one, post-paid, for $1.60.

General Grant's Portrait.

Our Portrait of General Grant, fully described in the May issue of the *American Agriculturist*, page 227, gives great satisfaction. Here, for example, is a letter from one recipient:

WORCESTER, MASS., June 8, 1885.

Engraving of General Grant came all right. We are very much pleased with it, and shall give it a place in our sitting room. I have shown it to several friends, and they all admire it. I have got one subscriber. I hope I shall have more by and by. The lady that now wishes the *American Agriculturist*, would like to begin back with the January number. She sends two dollars, and would like the Portrait of General Grant, and the Cyclopædia. I enclose the money. We receive the *American Agriculturist* all right, and hope we may ever have the pleasure of perusing its instructive pages. JOSIAH GODDARD.

The Portrait sells here, in New York, for $1.00. On receipt of $2.00, we will forward the *American Agriculturist* for one year, our Family Cyclopædia, and the engraving of General Grant, post-paid, all to one address, or to two different addresses, as may be specified. **Or,** on receipt of **$1.00,** we will send the Engraving of General Grant, and the *American Agriculturist* for the remainder of this year (seven months), both to one address, or to different addresses, as may be specified.

Our Family Cyclopædia.

Of the tens of thousands of our subscribers who have sent for this valuable work, not one complains that it is not all we have represented it to be. Every day we continue to receive numerous orders for it. Remember, our Family Cyclopædia is still presented to those who send $1.50 for the *American Agriculturist* for one year, and 15 cents additional for packing and posting Cyclopædia, making $1.65 in all.

The new Commissioners of Central Park have made a good commencement, in rising above all political considerations, and choosing as the Superintendent of Central Park, Mr. Samuel Parsons, Jr., who not long ago resigned a subordinate position under the former Commissioners, rather than submit to political dictation. Mr. Parsons, who is an educated gentleman, belongs to the old Long Island family of Parsons, known for their contributions to literature, as well as for their private charities. Both he and his father have frequently contributed to the *American Agriculturist* for many years past.

What This Number Contains.

Among the most interesting and important papers in this July number of the *American Agriculturist*, are those which treat of the insects injurious to vegetation. These are illustrated, and furnish the latest scientific investigations as to the habits and extermination of these insect pests. D. D. T. Moore writes upon Small vs. Large Farms, and an illustrated article upon Open Air Culture of Mushrooms is given. Henry Stewart writes on Southern Farm Life and Agricultural Interests, Building Hay Stacks, Summer Seeding to Grass, etc., etc. Andrew S. Fuller describes a new and most important method for the application of wood preservatives. Joseph Harris "Walks and Talks on the Farm," and tells how to keep Mangel Wurzels; also Ditches under the Highway, and Sheep Dipping. L. C. Root and W. Z. Hutchinson write The Apiary. D.W. King describes the designs for a Queen Anne cottage. Wm. Clift tells about the Peach Borer, and the remedy. M. C. Weld writes about the New Orleans Exposition, and Famous Families of Cattle. Dr. George Thurber contributes a variety of interesting Horticultural papers. Dr. Edwin J. Howe discusses the Importance of Pure Drinking Water. Elias Thayer describes a new Hay Gatherer. F. H. Hannah furnishes designs for convenient Pig Pen. There are numerous other writers. The Household and Children's Departments are unusually interesting. Among the many illustrated farm contrivances are a Novel Milking Stool, a Berry Picking Stand, a Rake for Weeding, Tool Sled and Marker, Improved Wire Gate, a Granary Hoe, Baskets for Shipping Early Potatoes, a Triple Land Roller, a Summer Milk House, etc., etc.

The American Agriculturist in the South.

Prior to the war, the *American Agriculturist* was a household word in nearly every Southern home. Following the return of peace, the former subscribers hastened to send for their old favorite, until it now again extensively circulates through the Southern States. But to the end that it shall be made still more interesting and valuable to Southern readers, one of our editors, now in North Carolina, is writing a series of valuable articles on the resources of the South generally, and the best means of developing them, while another of our writers, who spent several months in the Southwest, is doing the same work for that special region. We will cheerfully comply with the request of any present subscriber who may wish to have a sample copy forwarded to any Southern farmer for examination with a view to his subscribing.

Those people claiming to be his friends, who are interceding in behalf of the so-called "Editor and Business Manager" at Chicago, are informed that we occupy the same position towards him we have in the past, to-wit: that he must return our subscription lists, and cease burdening the United States mails with untruthful, anonymous circulars, directed against our circulation and business generally.

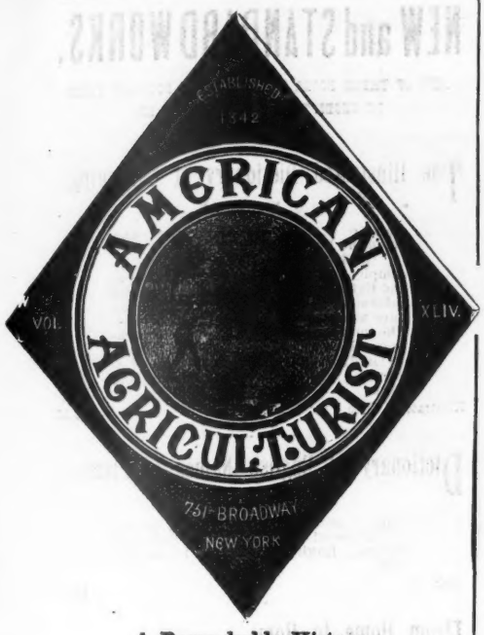
Free Strawberry Exhibitions are most admirable. The American Institute should have them every year.

Important—Insect Pests.

Read the descriptions of the insects which are destroying the onion beds of Orange County, the strawberries at numerous points, and the grain on the Pacific slope.

Specially Important.

All the articles after page 300, are not included in the index on the second page. They are all of special importance, including the various Humbug exposures.



A Remarkable History.

When the last (recently issued) U. S. Census volume alluded to the *American Agriculturist* as "especially worthy of mention because of the remarkable success that had attended the unique and untiring efforts of its proprietors to increase and extend its circulation"—the author probably had in mind among other incidents of its marvelous career the twenty-three similar Journals absorbed by this Periodical. Now, apparently, this list is to receive further accessions.

Under the head of "More Valuable Help," we find the following in the "Rural New Yorker" of Saturday, November 4, 1871, as the leading editorial.

"We have the pleasure of announcing that Mr. David W. Judd, who, in connection with his brother Orange, purchased the 'Hearth and Home' about a year ago, and has until recently been one of its leading editors, is now a member of the editorial staff of the 'Rural New Yorker.' Mr. Judd is an experienced and able journalist. His long editorial connection with the 'Commercial Advertiser,' and other New York dailies and weeklies, have afforded him rare opportunities to become an adept in the profession. We are confident, therefore, that Mr. Judd will prove a valuable accession to our corps, adding to its talent and strength; hence, we congratulate our readers thereupon. That his labors will soon be felt and appreciated by our large parish of readers we are assured. Indeed, having such able and efficient office associates as Messrs. Bragdon, Fuller, and Judd—with the continued valuable aid of Messrs. Randall, Willard, Harris, and Miss Wager, we feel confident that the 'Rural New Yorker' will continue to increase in interest, value, and acceptability."

Mr. Andrew S. Fuller's advent upon the paper was thus chronicled by the "Rural" a short time before the above appeared:

"Mr. Fuller is too well known as an author and as an editorial writer on rural subjects, especially horticulture, pomology, etc., to require any introduction to the reading cultivators of the country. A practical farmer, a horticulturist and close observer, and ready writer, we regard Mr. Fuller as unusually qualified for his position as Associate Editor of the "Rural New Yorker."

With one exception, the above writers who are living, including Mr. D. D. T. Moore, the founder and then editor-in-chief of the "Rural," are to-day aiding in the work of making the *American Agriculturist* "interesting, valuable, and acceptable." Indeed, this July issue contains articles from all of them, with the exception noted, and we hope by another month to have this writer included in our regular staff.

But this is not all. Now—fourteen years since these paragraphs appeared—there are indications that the "Rural" itself might be absorbed by the *American Agriculturist*, which would make twenty-four papers in all absorbed to date. Last year, July 12, the individual who now subscribes himself "Editor" of the "Rural," in a very long and highly interesting address to the public, asserted that it had been "apparent" to him for eighteen months, "painfully so, at times," that he was "incapable" of editing and publishing the "Rural," and carrying on his Potato Experiments all at the same time. He therefore had taken into partnership a Niagara Grape Financier, on condition, however, that if his new "Associate" did not fill the bill, he should resell his interest. Now the "Editor," it is alleged, quietly states, that so far from being relieved by his "Associate's" presence, he is compelled to work harder than ever.

Furthermore it would appear from the columns of the "Rural" this year, that the "Editor" is suffering from other causes besides an "overworked brain." For example, we find such paragraphs as the following scattered through issues of the "Rural New Yorker" since the 1st of January:

"We have offered two thousand eight hundred dollars' worth of presents to subscribers.....but the largest club up to this date is less than forty."

"Dear Friends:—These presents are for you only, and unless secured by you, will revert to the manufacturers. Can it be possible that you do not care for them?"

"We offer three hundred and twenty-one presents. So far less than one-fourth of that number are working for them. We have always supposed that there were lots of people ready to jump at such rare chances."

"It now appears.....that over one hundred and fifty presents will be returned to those who kindly donated them to the "Rural," for want of competitors. There are but fifty who have sent us clubs for these presents."

"Have we no young men and women in our family who are expecting to marry and go to housekeeping? .....Where is the girl that will not secure it (the range), and get the ten dollars additional to buy furniture?.....Can it be possible, "Rural" friends, that you realize the value of these presents and make no effort to secure them? Here are hundreds of valuable presents going a-begging."

"Mr. Chas. A. Greene writes us, that 'farmers are beginning to appreciate the good the 'Rural' has done.' Well, we beg to say in the humblest manner, that it is time they did."

By a noteworthy coincidence, these items [after the *American Agriculturist* had declined the "Rural's" written request to club with that paper] *began to appear* in the issue *immediately following* the "Rural's" announcement that the *American Agriculturist*, the "New England Farmer," and the "Massachusetts Ploughman" had refused to receive its advertisement. Furthermore, the first of this collection appeared at the very time our printers were placing the following paragraph in type for the *American Agriculturist*:

"Our friends will be pleased to learn that we began this year with a larger *bona fide* circulation, and sent the *American Agriculturist* to more paying subscribers than at the beginning of any year for twelve years past."

Now, if with the condition of affairs which the above revelations would seem to foreshadow, we should take the "Rural New Yorker" off the hands of the parties at present running it—it must be under certain stipulations, and of course with the consent of the "Editor's" estimable father. We are willing to fill out the subscriptions for the remainder of the year, because this will entail but little expense upon us, but *unwilling* to assume the medical advertising contracts, and *comic* cartoons. We are willing to receive all of the employes of the establishment, along with the subscription list, because glad of an opportunity to insure them the compensation to which their services entitle them. We are *not* willing, however, to receive along with the "Rural" the individual who subscribes himself "Editor," because his New Jersey "Experimental Grounds," (of which the "Rural" readers have heard so much) they being only some two acres in size, would be merely a "potato patch" annex to the *American Agriculturist* farm. We furthermore have no use for his Potato Experiments, inasmuch as they would not apply in any locality where the *American Agriculturist* is read. For both him personally, and his abilities, we have the most charitable regard. Indeed, so far from coinciding in the vigorous declaration of Mr. Orange Judd, that he, the "Rural" "Editor," was "a fraud and a charlatan," we defended him on the ground of inexperience, asserting that it was unreasonable to expect a clerk just from the shop to immediately drop his measuring stick and intelligently wield the pen. One of our long-time associates having found him in a cloth store, and endeavored to make an editor of him, why should we not have a personal regard for him?

Furthermore, we are *not* willing to receive the "Associate" Editor in any transfer of the paper, because we have no use for his Niagara Grape experiences, and we cannot learn that he has had any other experiences which could be made available in publishing an Agricultural periodical. We are always both willing and happy to impart advice and instruction to Amateurs, as we often have to the "Editor," but we cannot permit them to practise upon our readers. The "Associate" Editor will understand we mean no disrespect to him. With us it is, of course, a matter of brains and experience; but so far from making the slightest unkind allusion to the "Associate," we warmly welcomed him to his new field (see September *American Agriculturist*, 1884), as a "gentleman,"—something which had long been needed, and would be a great curiosity in that particular quarter.

If, with the above explanations, therefore, the readers of the "Rural New Yorker" should sooner or later receive copies of the *American Agriculturist*, to fill out their unexpired subscriptions, they will understand why we do not in the absorption process retain the two individuals who at present advertise themselves as "Editor" and "Associate."

Kind Words.

From the Journal, Syracuse, N. Y.

"First and foremost of all the monthly agricultural periodicals of this land stands the *American Agriculturist*. The same editor, Dr. George Thurber, who has been at its head for twenty-five years past, still remains in charge, and the same able corps of assistants and writers are employed."

From the Christian Union, New York.

"The *American Agriculturist* is to be congratulated on the evident signs of progress and prosperity which are found in its pages. It represents the best experimental and writing talent in the line of Agriculture in this country, and shows in all its departments the tireless energy of David W. Judd."

From the Evangelical Messenger, Cleveland, O.

"Mr. Henry Stewart, for twelve years one of the editors of the *American Agriculturist*, has again resumed his connection."

From City and Country, Columbus, O.

"Mr. Joseph Harris, one of the editors of the *American Agriculturist*, is a good farmer and a first-class writer, and we can all look for good, sound, practical advice from his pen every month."

From the Congregationalist, Boston.

"The *American Agriculturist* is a neat illustrated magazine, practical, full of information, without being too technical in language, edited judiciously, and containing a large variety of appropriate material."

From the Christian Advocate, New York.

"The *American Agriculturist* has been greatly enlarged and widened in scope, and stands unrivaled to-day in the high quality of its editorial and general make-up. Every farmer should have it as a permanent visitor to his home. The paper was never so strong financially as it is to-day."

From the Christian Advocate, Pittsburg, Pa.

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From Zion's Herald, Boston.

"The *American Agriculturist* is lavishly and finely illustrated and shows ever fresh vigor in its editorial department. It is without a rival in this country."

From The St. Louis Central Christian Advocate.

"The *American Agriculturist* has been on our exchange list for many years, and we have said many words in commendation of it, but none too many. It is one of our oldest agricultural papers, has a world-wide reputation, and is full of the enterprise which keeps a paper fully up to the times."

Animal Ailments.

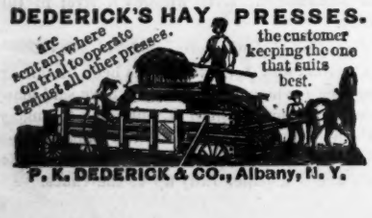
LAMPASS consists of inflammation of the bars of the mouth, and is produced by an inflammatory condition of the system. It is usually treated by giving cooling medicines, as a dose of one pound of salts, and by lancing the bars in a few places. Disorder of the stomach will produce this disease: hence careful feeding is advisable, as it is under all circumstances.

PURE WATER.—Few persons are aware of the importance of pure water for both themselves and their live stock. When water is taken into the stomach of an animal, it is absorbed with great rapidity. A horse will drink a pailful of water, and in five minutes it will be passing through the system. A cow may drink some foul water, and in three hours the impurities will be found in the milk; even the odor of the water will be apparent. Anything which may be dissolved in the water, or any impurity which may be so fine as to pass through the absorbent vessels, will of course pass into the blood and produce disease. Many of the worst diseases which affect persons and animals, are thus produced. As the ounce of prevention which is worth pounds of cure, a supply of pure water will enable animals to avoid the greater part of the troubles to which they are subject.

A SICK CALF.—S. E. Valentine, Wake Co., N. C. The discharge of "green stuff" from an animal's nose indicates disorder of the digestion. It is an act of vomiting, which is rare with cattle, and when the matter vomited is thin, it escapes from the nostrils as well as from the mouth. Abstinence from food for a day or two, with a dose of two ounces of raw linseed oil, usually rids the stomach of the irritating matter through the bowels, and soothes the stomach. One or two light feeds of well boiled oatmeal gruel, with a little salt and ginger, will help to restore the calf. But moderate feeding is indispensable until the stomach becomes stronger. Calves should always be given a small allowance of fine bran, or ground oats and corn, to keep the digestive organs in good condition.

Dipping Lambs and Sheep.

Sheep with open fleeces and little yolk, of whatever breed, need to be dipped once or twice a year, to destroy the ticks. If the ewes have been afflicted with ticks, these, after shearing, will be certain to go to the lambs, which should be immediately dipped, if the matter is not already attended to. For a sheep dip, on our own farm we use crude Carbolic Acid and White Hellebore powder. We have just dipped fifty lambs. We used a quart of crude carbolic acid and two pounds of White Hellebore in fifty gallons of water, and when we were through, nearly half the dip was still unused. We have used this dip for several years, and always found it efficacious. Usually we have added more or less soft-soap, but this year it was omitted, and apparently without detriment. We put the two pounds of white hellebore in a pail, and stirred it up with a gallon of boiling water. The carbolic acid was simply poured into the fifty gallons of cold water in the tub, and the gallon of boiling water and hellebore poured in, and the whole well stirred together, and the lambs were dipped in the liquid. In two or three weeks after the first application, the lambs should be dipped again. The liquid that is left from the first dipping can remain in the tub, and by adding a little more carbolic acid, hellebore, and the proper proportion of water, the dip is all ready, and fifty lambs can be dipped in half an hour. The crude carbolic acid costs about seventy-five cents per gallon, and the white hellebore powder twenty-five cents per pound. We have repeatedly given contrivances for dipping sheep. They are very convenient, but not necessary. And our object at this time is to induce all our readers who have long wool or Southdown lambs, or their grades, to dip them at once. Of course, after the lamb is dipped, you will squeeze out as much of the water as you can conveniently, but the materials of the dip cost so little, that it is not worth while to provide arrangements for holding the lambs until all the water is drained or squeezed out of the fleece. "What shall we dip in?" Anything you have that will hold water and a lamb. A tub made from an oil cask answers our purpose.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(From the Medical News.)

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(The *Medical News* is published in Philadelphia, and is the organ of Jefferson Medical College. Its standing is too high to require confirmatory remarks.

(From Leonard's Medical Journal.)

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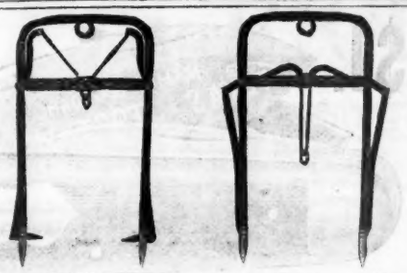

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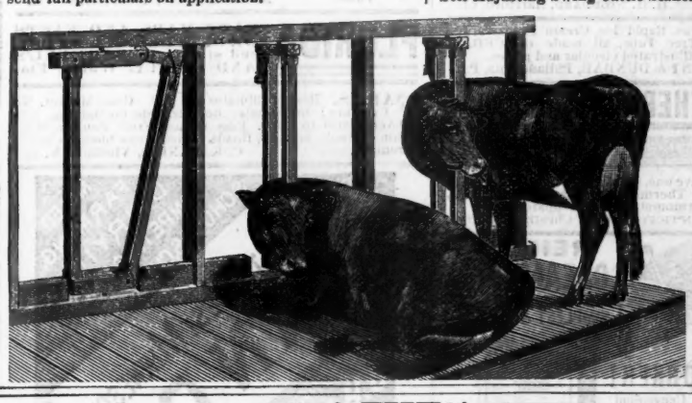

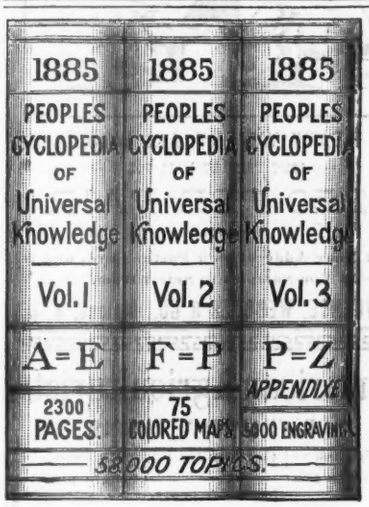

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